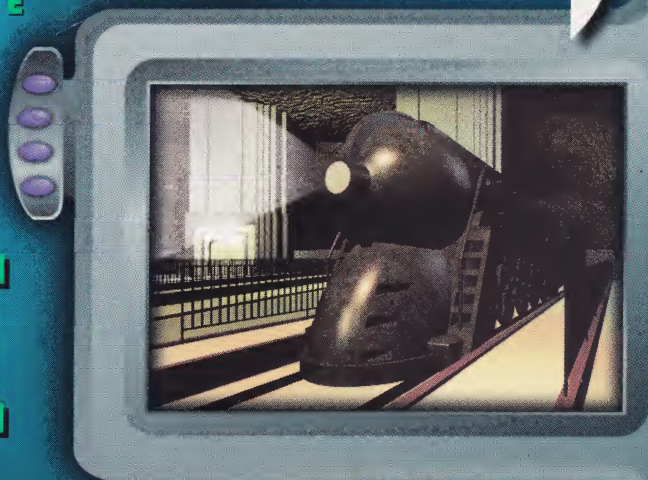


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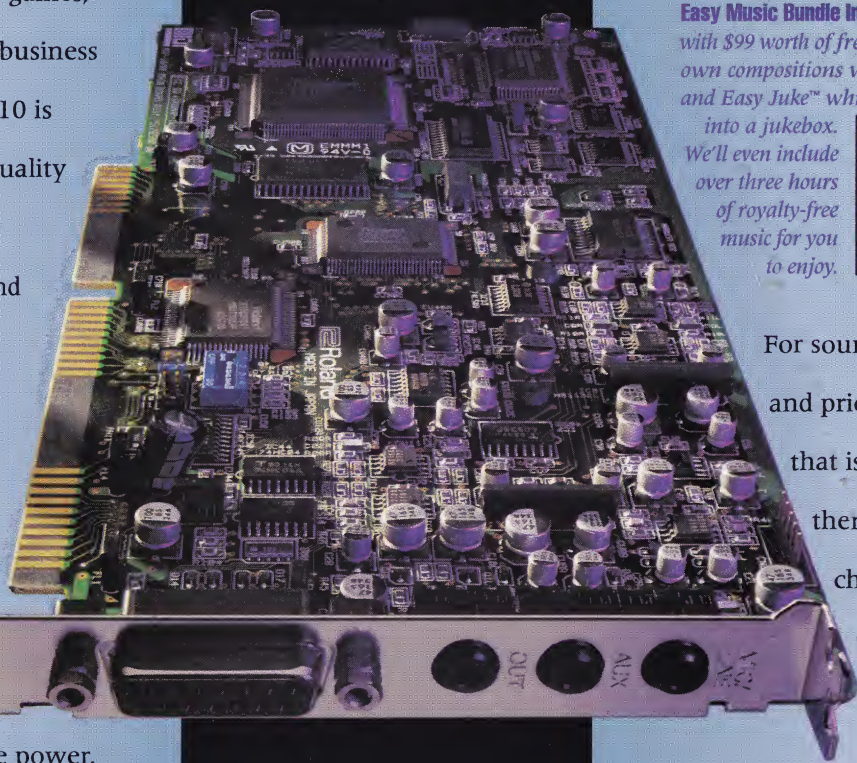
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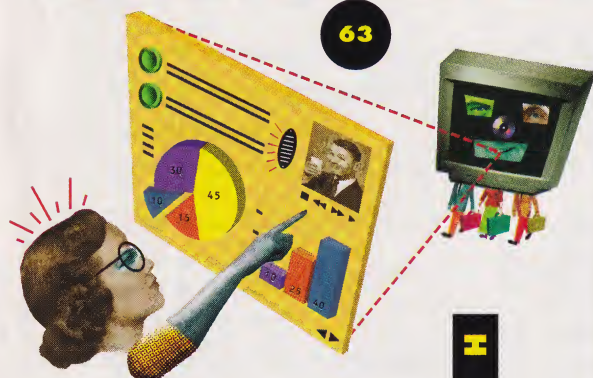
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FROM THE EDITOR



CHEATERS

Strapped for time, short on staff, overcome by a momentary lapse of ideas . . . we've all been there. In those moments, your options range from the desperate (take the moolah and head for the hills) to the obvious (stress out and have an aneurysm or two) to the clever (skip the stress and spend some moolah on a subcontractor to bail you out) to the brilliant (cheat).

Cheat? Cheat. Cut corners. Grab some third-party generated content to flesh out your project and free up your valuable human resources to work on stuff that deserves their undivided attention. Then take the moolah and head for the hills for a well deserved vacation when you deliver your project on time and under budget.

Even if you're a purist who wouldn't dream of using pre-built 3D models, texture libraries, clip graphics, sound effects collections, stock video footage, or whatever, *IA* managing editor Lea Anne Bantsari's new series on stock media might help change your mind. Check out the first installment on page 46 and learn how to find all kinds of film and video footage, discover what factors vendors use to determine how much they'll charge you to license their material, and marvel at the extensive listing of stock footage houses our new managing editor has put together for you.

New managing editor? Yep. Lea Anne is just one of a bunch of shiny new people we picked up at the editorial staff store. Actually, we stole her away from the clutches of one of our many sister publications, *UNIX Review*. *UR* editor Andrew Binstock was kind enough to spend the last four years training Ms. Bantsari in the fine art of cracking the deadline whip so she was more than ready to move into a real job here at *InterActivity*. Lea Anne takes over from Kathleen Maher, whose true identity is actually editor of *CADence* magazine. Kathleen will continue to contribute her considerable expertise in things 3D to these pages as a consulting editor.

While the corporate Amex card was still hot in our hands, we couldn't help but continue loading the shopping cart. We had to mail order senior editor Ted Greenwald all the way from New York, where Mr. Ted had been covering audio and music technology for *Musician* magazine. Ted and I have been plotting ways we could work together on *InterActivity* ever since he showed me a prototype HyperCard stack he'd built detailing the multifaceted career of the Beatles. That was three years ago. Greenwald will be overseeing our product reviews section.

Editorial assistant Erica Smith was originally with HarperCollins. Her first *InterActivity* assignment was to pen our Run Time section, which got pulled from this issue because we ran out of room. Not to worry, though. Run Time will be back next issue. And you can still read Erica's work on putting together interactive presentations using existing authoring tools on page 63 of this issue.

Then there's east coast ad sales rep David Morrison (formerly of *Telephony* magazine) and associate publisher Tom Edwards (a former electronic publishing consultant). And since they were never formally introduced (and they've been with us since the second issue and may kill me if I don't put in a plug for 'em here), there's ad director Carol Robinson (whose past credits include stints with Polaroid, DEC, *Publishers Weekly*, *Net Guide*, and *Information Week*), her assistant Tim Hogan, and our talented art director/illustrator John Ueland (who had been working in our marketing/communications department).

Why the human resources shopping spree? In response to overwhelming newsstand sales and boatloads of positive feedback from you folks, we're taking the plunge and going monthly starting next issue. Thanks for all your support.

Enjoy.

Dominic Milano
Editor

InterActivity™

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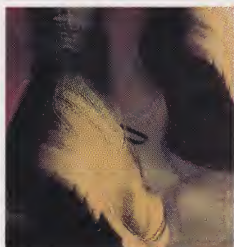
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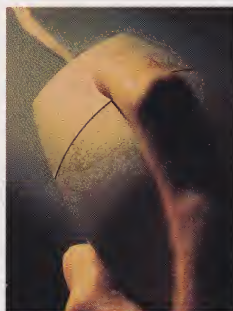
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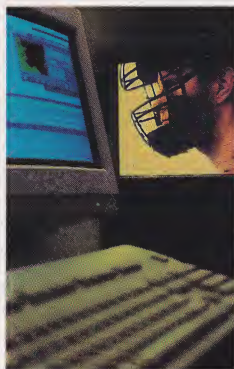
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P. O. V.



Electric Imaging

As one of the animators interviewed in your feature on *Buried in Time: The Journeyman Project 2* [InterActivity, July/August '95], I would like to clarify my statements regarding Electric Image. The way in which the material in the story was presented painted a rather unflattering impression of Electric Image. This was particularly my fault as I misunderstood the context in which the remarks were to be placed and didn't intend for the statements I made to be quoted literally, with no other context to judge the program by.

What didn't come across in the interview was my feeling that Electric Image is by far the best program on the Macintosh for creating high-quality animation and renderings. Its features, speed, and ease of use are unmatched by any other Mac program on the market, and we would have been hard-pressed to complete *Journeyman 2* without it.

I stand by my statements that the customer support we have received from Electric Image in the past has been less than stellar and that the copy protection methods they employ are cumbersome and intrusive. I can only hope they will improve these areas in the future. These things don't reflect upon the program's excellent capabilities as a 3D tool, however, and it's up to the individual user to decide whether these points are important before purchasing a program like Electric Image.

Finally, I misstated the amount of time it took for Electric Image to release a native Power Mac version of their program. We received our copy of Electric Image 2.1.1 approximately 10 months after Power Macs shipped, not 18 months as stat-

ed in the article. I apologize for the error.
Eric Fernandez
Computer Animator
Presto Studios
San Diego, CA

You folks are producing just about the best damn mag on program development that I have seen anywhere. I have been a reader of *Cinefex* for the whole time it has been published and find many parallels in the production of movies (as presented in *Cinefex*) and the interactive programs as shown in your pub.

I noticed your current issue's cover mentioning the *Journeyman Project*. The depth to which you go is remarkable. Content and scope of the mag are excellent. Keep it up.
Ken Christianson
Glendale, CA

CD Plus: The Blue Book

Iwould like to compliment you on Chris Meyer's article covering CD Plus [InterActivity, July/August '95]. Your study of the history and technical problems with Mixed Mode and previous "track 1" solutions was well covered and highlighted the fundamental reason CD Plus came to be. It's a foolproof solution for audio CD players. Other formats such as I-Trax, Rainbow, and AudioVision are confusing developers and consumers by using terms like Enhanced CDs and CD Plus to similarly describe their formats, but underneath they are no closer than the current Mixed Mode standard to addressing the track 1 problem. These formats are not 100% compatible with audio CD players or today's CD-ROM drives.

The reason for my letter is to shed light on your statement that "once Sony and Philips nail down the CD Plus format, they intend to define a standard format for the inclusion of lyrics, pictures. . ."

Microsoft, who since last fall has been driving the CD Plus standard within the music and computer industries, along with Sony and Philips has defined the standard CD Plus data format. It is now available for review. The CD Plus specification, also known as the Blue Book because of the color of its cover, was completed and released in the early part of June. Its availability was announced by Sony and Philips on June 8. Actually, I suggested that the color of the book should be fuchsia (because the standard encompasses the Yellow, Red, and Orange Book CD standards), but they weren't too excited about a hot pink color book!

My color preferences aside, the basis for the CD Plus data format was to provide a flexible so-

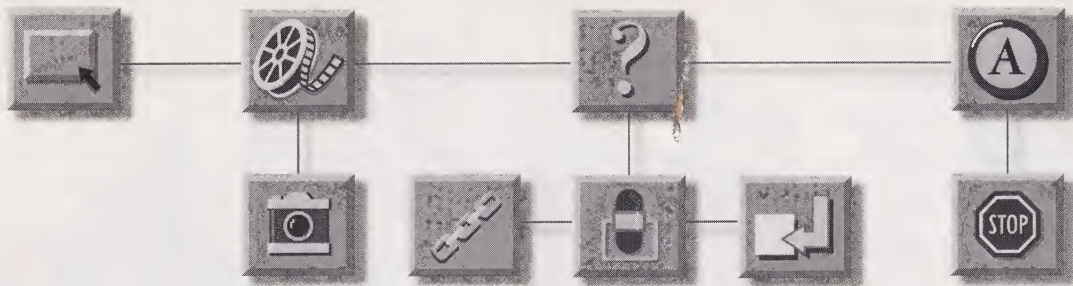
lution for developers that still benefits the consumer. The format defines a standard for the information that is, at first, most interesting to consumers who purchase audio CDs. This information includes the album title, track titles, lyrics, credits, and liner notes. There is also a standard for pictures with the requirement to include the album cover (front and back covers if both are available).

The format for the lyrics allows for karaoke information (i.e. timecodes associated with a word or phrase). This will enable a wide variety of playback applications on the computer, on future CD Players with larger displays, or dedicated karaoke players — thus enabling a truly worldwide standard.

Knowing that a wide variety of consumer possibilities exist with MIDI, the data format also allows for the association of MIDI files (in the General MIDI format) with individual CD audio tracks. Applications already on the market, such as Ahead Technologies, Virtual Guitar, and Hotz Technologies, utilize encoded MIDI files to enable consumers to play along with CD audio discs. With the inclusion of MIDI in the CD Plus format, these applications can become more mainstream and expand the potential application for CD Plus.

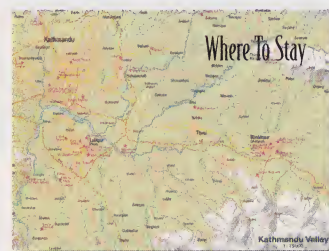
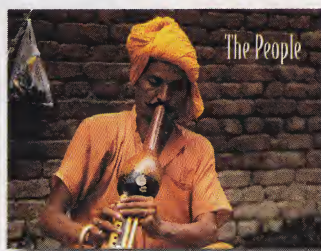
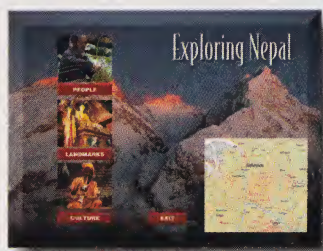
The CD Plus specification also includes a standard auto-start mechanism, i.e., the ability for an application to automatically launch upon insertion into the playback device. The auto-start mechanism is based on Microsoft Windows 95's new AutoPlay feature (Autorun.inf file) that enables this functionality in Win95. The specification uses the Windows 95 AutoPlay spec as a foundation for other application vendors and operating systems companies to expand upon to enable auto-start on other platforms. The members of the final specification review committee, which included Sony, Philips, Microsoft, Apple, and members of the Recording Industry Association of America (RIAA), all agreed that this was an important inclusion to the specification as a step closer to true "plug-and-play" that audio consumers experience today with CD players.

The CD Plus specification was designed to take minimal space on the data portion of a CD Plus disc, but this little bit of data will go a long way in offering a truly universal disc for multiple platforms. The spec still leaves room for a world of possibilities, including custom applications that are platform specific — allowing for the creative expression of musicians who choose to exploit CD Plus. These musicians will ultimately define what CD Plus will be in the future. That will aid in the evolution or possibly the redesign



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("What You See Is Not What You Get But An Icon Relating Vaguely To What You Get Eventually.")



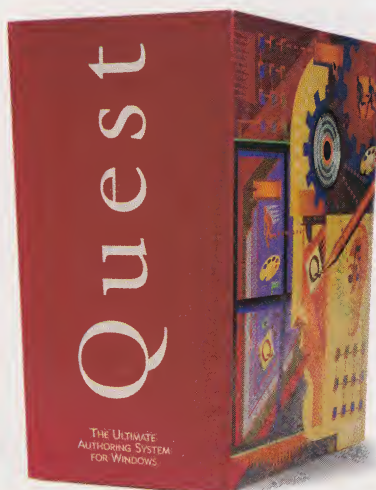
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WYSIWYG. You hear many claims from authoring systems saying *what you see is indeed what you get*. Fact is, only one authoring system, Quest 5.0 for Windows, allows you to create frames in a true visual environment. Maybe that's why icon driven authoring systems are yesterday's news and Quest for Windows is the new standard for creating dynamic, highly interactive training courses, educational titles, information kiosks, and much more.

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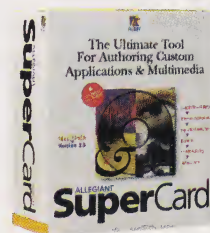
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READER SERVICE NO. 5

of cross-platform authoring tools and of built-in buffering capabilities on CD-ROM drives.

What's yet to come with CD Plus is truly exciting. I imagine the day not far from now when I buy my CD Plus discs, play them on my PC at home, read the liner notes that I miss from the album days, explore the artist's other music (discography), find out about new artists with music in the same genre, link to the online world to find out when they will be playing in Seattle, reserve my tickets, and email my friends to see if they want to join me.

Nicole Mitskog
Microsoft
Redmond, WA

3D Fiction?

I was reading "Affordable Realtime 3D: Truth or Fiction?" in the July/August issue, and I noticed some glaring mistakes about how Intel's product was described. For one, 3DR is the most affordable — it is free, and Intel has stated that they plan to keep it free. Your article stated that it costs \$495.

The 3DR product also contains a geometry engine and can handle lighting and transformations. The only limitation is that it is only a 32-bit DLL, whereas the Rasterizing engine can be accessed via either 16-bit or 32-bit code.

I am not sure about just being a stopgap measure, but Intel has stated that they plan to con-

tinue support for 3DR into the foreseeable future. Perhaps your reviewer had not seen Version 2.0, which has shipped, and with the next release due out shortly, it will be interesting to see what else has been added.


Just thought I would pass along the information. The biggest problem is it causes me to question the validity of the article in general because these are not small differences.

Jay Giganti
via CompuServe

Contributing editor Marie D'Amico replies: "When I discussed 3DR with Intel (a long while ago), they stated it was \$495. The market changes every nanosecond. Lots of companies change prices all the time, and an article can be accurate only at the time written. Intel may continue to support 3DR in the future, but with the competition out there and the direction of the market, I think it is a stopgap measure at best and is not really a major player in this field for developers." Co-author Omid Rahmat adds: "I am not sure that you are going to find a lot of companies besides Caligari championing 3DR at this stage, and although most people agree to its technical merits, 3DR doesn't represent enough of an argument in light of what is happening with Win95, 3D DDI, and Rendermorphics/Direct3D. To be honest, I think you'll find that the 3D market is changing very rapidly, and Microsoft's decision to buy Ren-

dermorphics coincided with a lot of strong direction coming from Redmond indicating that Win95 would provide developers of games and multimedia applications with all the tools they needed, and if it lacked anything, Microsoft will get it in there somehow. So, for some developers, depending on what exactly it is they want to do, 3DR may prove appropriate, but the majority of companies, and 3D development in general, are being driven from another angle."

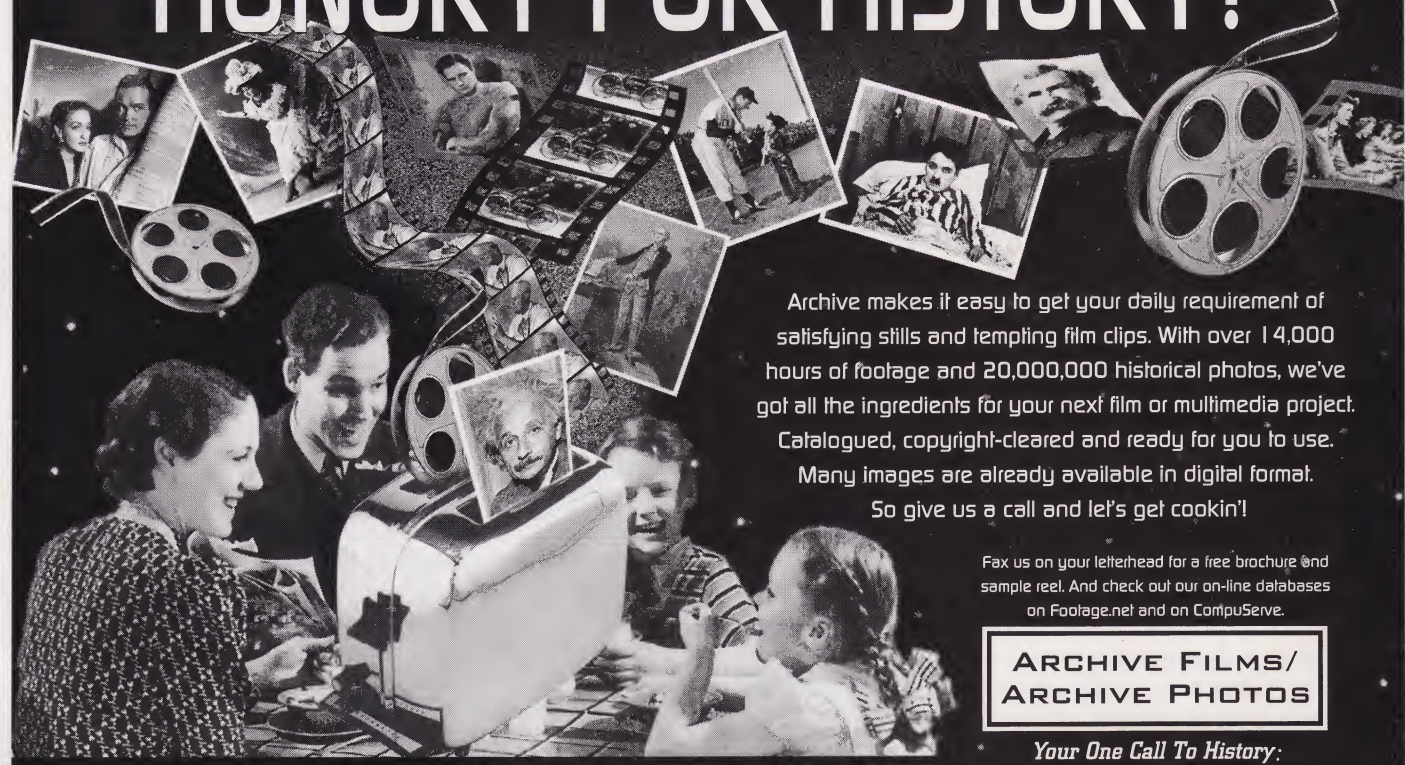
Setting the Record Straight

In our July/August story on licensing music rights in interactive media, we incorrectly stated that Ronny Schiff had "acquired CD-ROM rights from Paul McCartney and Yoko Ono." In fact, Ms. Schiff has, in the past, received licenses from McCartney's company MPL and Yoko Ono, but not specifically for CD-ROM. In addition, the company that used "Dock of the Bay" did not run into "trouble," as was misstated, because they were savvy enough to recognize the usage. 

CORRESPONDENCE

snail mail: Point of View, InterActivity
411 Borel Ave., Ste. 100
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NEW GEAR

Interactive Production Suite

Bundling their own products with those of Avid and Allegiant, Strata offers a software suite for interactive developers, Strata Virtual Studio (\$1,495). The suite encompasses video editing, transitional effects, 3D modeling and animation, 2D graphics, morphing, and authoring.

Strata's own StudioPro (either v1.5.2 for 68000 machines or v1.75 for Power Macs) provides modeling, animation, and rendering with such special effects as explode, shatter, atomize, and bounce. StudioPro Blitz adds support for QuickDraw 3D for editing and manipulating fully textured models in real time, QuickTime VR for virtual walk-throughs, and VRML (Virtual Reality Modeling Language) for delivering 3D images online via the World Wide Web. Their paint program, MediaPaint, makes it possible to paint directly on QuickTime movies, either one frame at a time or as the movie plays.

Avid's VideoShop is a QuickTime-based video editor. It goes well with the same company's TransJammer transitional effects generator (for things like spinning squares, juggling balls, and orbiting moons) and Elastic Reality, which provides top-quality warping and morphing effects. To tie things together Strata includes Allegiant's SuperCard 2.5 authoring system. The new version supports 24-bit color, customizable transitions, enhanced QuickTime and QT VR support, back-drop windows, improved security, and dozens of new script commands.

Strata, 2 W. St. George Blvd., Ancestor Square, Ste. 200, St. George, Utah 84770; vox 801.628.5218; fax 801.628.9756; email AppleLink D2022.
Reader Service #101

Tactile Input

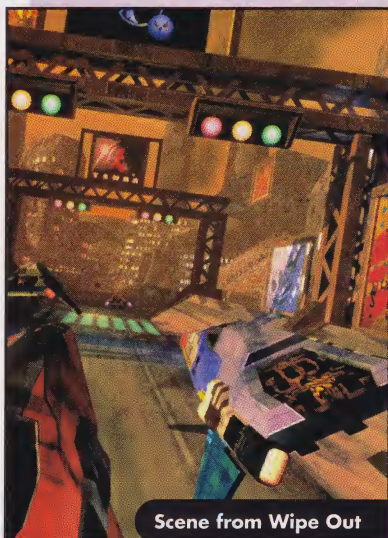
Specializing in point-of-information and point-of-sale applications, Pixel Touch expands its line of tactile input devices with 14" and 20" Touch-TV display screens for CD-I, Laser Disc Interactive, PC, and Mac systems (\$1,225 to \$2,495). Emulating a standard pointing device, Touch-TVs connect to any I/O port and communicate directly with CD-I players without the need for software drivers. With PCs, they can be used with a VGA or TV video card, lowering overall system costs. Switchable point and stream modes enable CD-I developers to use icon highlighting and drag-and-drop interface elements. Touch-TVs can be ordered with Surface Acoustic Wave (SAW), resistive, or capacitive technology. SAW systems detect disturbances in a high-frequency acoustic field to generate X, Y, and Z coordinates, transmitted via RS-232, ADB, or PCI outputs. This technology yields high clarity but

low touch resolution and response speed. Resistive and capacitive systems generate X and Y coordinates via serial RS-232, with faster response, higher resolution, and a more durable interface. 14" units are based on the Sony Trinitron picture tube, while 20" models incorporate

either a Trinitron or a Sony Cube RGB monitor. Pixel Touch also sells bundled CD-I and PC touchscreen solutions.

Pixel Touch, 1840 Carlos Ave., Bldg. 15-A, Ontario, CA 91761; vox 909.923.6124; fax 909.923.6126. **Reader Service #102**

The View from SIGGRAPH '95



Scene from Wipe Out

SIGGRAPH — the annual meeting of ACM's Special Interest Group on graphics — is a conference where all things animated, three-dimensional, and computer-generated crawl out of the woodwork, tease your eyes, and tempt your pocketbook. Mega exhibits from mega players such as SGI, Microsoft/Softimage, Alias/Wavefront, Sun, Radius, Discreet Logic, Autodesk, *ad infinitum*, dominate this tradeshow with video walls and projection screens showing clips of this year's state of the art.

Most amusing is the fact that many of the same clips were showing in competing booths (scenes from *Casper* were seen just about everywhere), leaving the hapless attendee to wonder what was what.

All that aside, lots of new toys were announced at SIGGRAPH, some are shipping now. Some are supposed to be shipping by the time you read this. A few highlights:

We were NDAed on the details, but if you were paying close attention in the Microsoft booth, you'd see that Accel-

Graphics were demonstrating their OpenGL accelerator card for Softimage on a DEC Alpha workstation running under Windows NT (stay tuned). Meanwhile, SGI was slashing prices (see item on page 12) and introducing the Indigo Impact. Alias/Wavefront had all their guns trained on the highend, previewing a suite of next-generation tools along with upgrades and enhanced versions of PowerAnimator, StudioPaint 3D, Dynamation, Kinematic, and Composer.

Electric Image added inverse kinematics, enhanced network rendering, and plug-in capabilities in version 2.5 of their popular animation system. Autodesk 3D Studio IPAS plug-ins could be seen anywhere you turned (our favorite being Autodesk's own Biped, which animates walking figures automatically). And interactive media on the World Wide Web via VRML was the subject of exhibits in booths by IBM, Microsoft, SGI, and many more. But our favorite Internet app of the show was on display in Sun's booth. The Java programming language allows interactive HotJava apps to be delivered over the World Wide Web so they can run locally on your computer. Netscape has announced they'll support Java by year's end, and Sun is making Java available free for all at <http://www.java.sun.com/>.

This year's most common SIGGRAPH experience: wander into a booth that looks like it would have nothing to do with interactive media, such as Autometric (a company that specializes in scientific visualization information systems), and find out they've opened up a marketing arm for interactive media developers. Cool app number 99: two doctors with the ultimate CBT app, VR surgical simulation gear complete with force feedback.

OpenGL accelerator cards abounded, as did support for Apple's QuickDraw 3D. Macromedia was cooking up a new user-friendly 3D modeling program, Sony Playstation titles were on screens everywhere, and Virtual World Entertainment (the folks who brought us BattleTech) had a kick-butt new near-photorealistic game called Wipe Out running on Pentiums accelerated with a ProVision card from Division. Another cool exhibit in the Interactive Communities exhibit area: Coco Conn's SIGkids were doing daily live broadcasts on the Internet. *InterActivity* and our sister publication *Keyboard* rounded up the audio gear with a helping hand from Alesis, Digidesign, and Opcode.

There were many, many more new toys, but we're out of space. Stay tuned.



VR in Every Living Room

In a bid to nail down the market for QuickTime VR and the Apple Media Kit, Apple has reduced licensing and royalty rates. The QuickTime VR Authoring Suite, which includes authoring tools and runtime software, now costs \$495, down from \$2,000. (It's also available bundled with MPW Pro — a Mac development environment including the MacApp applications framework, compilers, debuggers, testing tools, and so on — and a training course at Apple's Developer University for \$1,995). Furthermore, the QuickTime VR runtime software can be distributed free with the first 25,000 units of any commercial CD-ROM title, 50,000 units of a commercial CD Plus disc. Beyond that, the fee for CD-ROMs is \$400 per 5,000 units; \$750 per 25,000 CD Plus discs. Version 1.0 of the suite will include Macintosh versions and a beta release of the runtime software for Windows, which will be upgraded free of charge when a final version becomes available. Also, the runtime software for products authored using the Apple Media Kit now can be distributed free of charge.

Apple, Box 319, Buffalo, NY 14207-0319; 800.776.2333; vox 408.996.1010; email AppleLink APDA; WWW <http://qtvr.quicktime.apple.com>.
Reader Service #103

Authoring for the Rest of Us

Billed as "the first \$99 multimedia authoring tool," Oracle's Media Objects for the Mac is being distributed online. Media Objects is geared toward cross-platform, cross-media development. A Windows version is on the way. In addition to the release version, a 90-day trial version can be down-

loaded free of charge from Oracle's Web site. The site also includes developer support and information about other Oracle products. In addition, Oracle offers the Media Objects Developer Program (membership is \$99) for more detailed support in the areas of authoring, project management, and marketing. The Developer Program includes a membership kit, quarterly electronic newsletter, and special discounts on new products.

Oracle, 500 Oracle Pkwy., Redwood Shores, CA 94065; vox 800.633.0687, 415.506.7000; fax 415.506.7200; WWW <http://www.oracle.com/>.
Reader Service #104

The Big Picture

For presentations that require projected images, ASK LCD offers an extensive line of LCD overhead panels and projectors. The Impact line of overhead panels fits atop any overhead projector to display electronic images in up to 16.7 million colors. The highend Impact WSX (\$9,495) offers resolution of 1024x768 pixels, although an autosizing feature enables fullscreen projection of resolutions from 640x480 to 1280x1024. It works with virtually any computer, workstation, or video system. With much the same specs and capabilities, the Impression 960 (\$18,000) LCD projector measures 12.7" x 9.6" x 25.1" and weighs 27.5 lbs. Fitted with built-in RGB video compatible with PAL, NTSC, and SECAM TV systems, the unit accommodates composite video and S-video inputs via an external adapter. Also new, the Impact 24 (\$5,295) and Impact 14 (\$3,795) overhead panels work with PCs and Macs at a resolution of 680x480 pixels. All four

products automatically identify and adjust to compatible computer and video sources, and come with the BatMouse infrared, a remote mouse used to control the computer.

ASK LCD, 1099 Wall St. W., Ste. 396, Lyndhurst, NJ 07071; vox 800.275.5231, 201.896.8888; fax 201.896.0012. **Reader Service # 105**

mAzing Authoring

The buzz is on about mTropolis (\$4,995), the long-awaited cross-platform authoring package for the Macintosh from mFactory. The company's aim has been to balance ease of use with flexibility, facilitate collaboration between artists and programmers, and provide effective documentation and support.

Based on proprietary mFusion core technology, the system is intended to provide the performance of raw C code in an extensible, object-oriented authoring environment. Reusable media and logic objects are manipulated using a drag-and-drop interface. Multiple views are provided of work in progress, including structure, layout, and layers. mTropolis itself can be modified and augmented with plug-in extensions written in C, C++, Pascal, or Assembler. Titles can be executed at full performance and debugged interactively within the authoring environment, and ported to alternate platforms simply by selecting a menu item. Platforms currently supported in this manner include Macintosh, Power Mac, and Windows.

mFactory, 1440 Chapin Ave., Ste. 200, Burlingame, CA 94010; vox 415.548.0600; fax 415.548.9249. **Reader Service #106**

Saddle Up the Pentium



AltaVista calls Media Wrangler for Windows — the second \$99 authoring system? — a "multimedia database" with facilities for storyboarding, multimedia playback, format conversion, and authoring. The Professional Edition version is said to be suited for inhouse cataloging of media elements as well as creating end-user applications. Elements in a variety of graphic, audio, and video formats can be associated with hot spots via a drag-and-drop authoring interface. The result is a "Roundup," or page containing media elements. Roundups then can be linked to create a library of Roundup files. Users navigate a Roundup by watching for the cursor to change shape, indicating the type of media element available by clicking in a given part of the display. In the background, "hindsight" and "foresight" architecture is said to anticipate the user's actions and decompress high-demand items ahead of time. A royalty-free Media Wrangler player is included.

AltaVista, 1671 Dell Ave., Ste. 209, Campbell, CA 95008; vox 408.364.8777; fax 408.364.8778. **Reader Service #107**

NEW GEAR

Silicon Speed Demon

The ante has been raised once again for CPU power with Silicon Graphics' introduction of the MIPS R4400 microprocessor. With a clock speed of 250MHz, it's one of the speediest MIPS RISC chips on the market. The new processor will be built into SGI Indigo 2 workstations, Onyx graphics supercomputers, and Challenge servers. Upgrades are available for current owners.

But the real news at SGI is the Indigo 2 Impact line of workstations that outperforms the 3D capability of the Indigo 2 Extreme by a factor

of three, and the Extreme's visualization power by a factor of 100. Driven by eight custom ASICs, the Impact can run any Indigo 2 application, while a dozen software companies have committed to supplying Impact-specific applications. Two models have been unveiled, the High Impact (\$35,000) and Maximum Impact (\$55,000), in various configurations. The base configuration includes 64MB RAM, 2GB hard disk, 2MB cache, and 19" monitor with 1280x1024 resolution.

Meanwhile, prices have dropped by as much

as 22% on selected workstations and servers. The 175MHz Indy's price, formerly \$15,995, has been reduced to \$13,995 and the speed cranked up to 200MHz. (SGI models of comparable speed previously went for \$26,000.) The former 133MHz Indigo 2 now boasts a 175MHz processor at the same price, and the price of the Power Indigo 2 XZ has been reduced to \$40,000.

Likewise, list prices for some Challenge servers have dropped by approximately 20%. The Challenge S, entry level for multimedia delivery, now goes for \$9,900, and the Challenge DM scalable network resource server now goes for \$34,900. In addition, a 200MHz Challenge S configuration with 64MB RAM and a 2GB hard disk has been added to the line starting at \$15,900.

Silicon Graphics, 2011 N. Shoreline Blvd., Mountain View, CA 94043-1389; vox 415.960.1980; fax 415.961.0595; WWW <http://www.sgi.com>.

Reader Service #108

Life is But a Dream

Bringing advanced 3D technology to Mac and Windows platforms at near-consumer prices, Ray Dream Studio (\$499) integrates Designer 4, Animator, Dream Models, and Extensions Portfolio. Ray Dream claims this release as the first 3D application to support the user-interface innovations and 32-bit multitasking of Windows 95 and the new Power Macs, including Apple's QuickDraw 3D. Ray Dream Designer owners can upgrade for \$149.

In addition to automatic handling of perspective, shadows, lighting, textures, and reflections, Designer includes wizard assistance for modeling and scene building, plus a Shaders editing environment that includes a new Glow channel for objects that appear to emit light. Animator incorporates highend features such as inverse kinematics, keyframe animation of all object parameters, rotoscoping for effects such as using QuickTime and Microsoft Video clips as texture maps, object deformation, and object behaviors. The Dream Modes component is a library of more than 500 textured models, while the Extensions Portfolio provides seamless access to extended functions such as layered fog. A toolkit is included for creating extensions.

Ray Dream, 1804 N. Shoreline Blvd., Mountain View, CA 94043; vox 415.960.0768; fax 415.960.1198; email AppleLink.RAY.DREAM. **Reader Service #109**

M-JPEG Capture

Quadrant has been catering to niches in the desktop video market as quickly as emerging technologies create them. Their latest effort is the Q-Motion 100 video board (\$499) and Q-Motion 150 (\$699; which is the board bundled with Adobe Premiere 4.0 LE and CeQuadrant PixelShrink MPEG Encoder). Q-Motion 100 captures video



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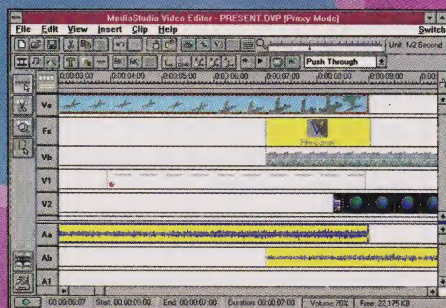


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NEW GEAR

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Q-Motion 100 supports NTSC, PAL, and SECAM standards to capture from camcorders, VCRs, and TVs, as well as higher-quality S-video sources for output to video or AVI files. The package includes all necessary drivers and libraries plus the proprietary VidGrab 1.2 capture application, and is fully compatible with the Video for Windows standard for use with various video editing and effects software on the market.

Quadrant, 170 S. Warner Rd., Ste. 102, Wayne, PA 19087-2191; vox 610.964.7600; fax 610.964.8195. **Reader Service # 110**

Integrated Resources

At the cutting edge of interactive publishing is the integration of online and CD-ROM environments. Now, there's a set of tools for combining the two media: Verity's Topic WebAgents Publishers Toolkit (\$9,995, with runtime licenses of \$3 to \$8 per CD depending on quantity). The Toolkit runs on Windows, Mac, and Unix platforms. Using Topic WebAgents, end users search for information via a standard Web browser to access the Internet, a local network, or desktop CD-ROM seamlessly. When the user enters a query, Topic WebAgents searches and returns documents found in any of the above sources while the source remains transparent to the user. Thus, updates to a CD can be retrieved and end users presented with the most up-to-date presentation.

The Toolkit includes the Topic Remote Web Indexer for building indexes to Web-based HTML and text pages, Topic File Indexer for building and maintaining indexes to directory trees, and Topic advanced indexing utilities for support of Adobe Acrobat PDF and SGML indexing. Enhanced Mo-saic is bundled in.

Verity, 1550 Plymouth St., Mountain View, CA 94043; vox 415.960.7600; fax 415.960.7698; email info@verity.com. **Reader Service #111**

Desktop Video Online, Real Time

Professional video production takes a leap toward the desktop with version 2.5 of Media 100, Data Translation's digital video production system for the Mac (\$10,995 base system, with all options \$11,995). The new system is based on a single PCI card for the Power Mac and provides video capture, online editing, realtime effects, and near-lossless internal 4:1 compression to produce broadcast-quality video entirely within the computer.

New features include eight tracks of 16-bit, 44.1kHz audio; control over input gain, setup,



Mitsubishi's First ITV setup box, the OS/9-based STB-1000.

hue, and saturation; video waveform monitor; realtime adjustment of tint, brightness, contrast, colorization, posterization, and solarization; and color effects including B&W, sepia, cobalt, fade-up, fade-down, and inverse color. Augmenting the original selection of accelerated effects, version 2.5 adds push, slide, inset, Venetian blinds, iris diamond, iris cross, and various wipes. The updated system can perform assemble/insert to tape with frame accuracy, eliminating the need to build leaders and trailers.

Options include Suite Deal (\$3,995, including CG, FX, and EDL options), HDR Option (\$5,995) for compression beyond 4:1 plus Betacam SP support, and Power Option (\$3,995).

Data Translation Multimedia Group, 100 Locke Dr., Marlboro, MA 01752-1192; vox 508.460.1600, fax 508.481.8627. **Reader Service #112**

Meta CBT

Organizing and managing a multimedia project is as critical as the production effort itself. Allen Communication addresses this issue head-on with Designer's Edge for Windows (\$2,995), an integrated set of pre-authoring tools. Designer's Edge is intended to accelerate the analysis, design, and evaluation of interactive training applications.

Allen's experience in authoring computer-based training extends over a dozen years and a client base that includes IBM, AT&T, the USAF, and Union Pacific Railroad. Based on this expertise, Designer's Edge breaks down project planning into 12 phases based upon larger cycles of analysis, design, development, implementation, and evaluation, and supplies advice, forms, reports, and functionality appropriate to each one.

In addition to help files, Designer's Edge includes instructional advice from industry experts, a step-by-step tutorial, and wizards to make the program useful for both untrained and experienced CBT authors.

Allen Communication, 5225 Wiley Post Way, Lakeside Plaza II, Ste. 140, Salt Lake City, UT

84116; vox 801.537.7800; fax 801.537.7805. **Reader Service #113**

Touch that Dial!

Pushing interactive television along on what promises to be a winding path toward maturity, Mitsubishi introduces its first settop ITV box, the STB-1000 (pricing not available). The first of a family of OS/9-based products, it offers analog reception, MPEG-1 and MPEG-2 codecs, hybrid fiber/coax connections, asymmetrical digital subscriber line (ADSL) compression, and ATM capabilities.

Above all, the unit is designed for ease of use. A thumbwheel-equipped one-button remote controls an icon-based GUI for selection of volume, channel, and application as well as stop, start, pause, and related functions. The OS/9 DAVID operating system provides integration with telephone, cable TV, and wireless networks and compatibility with Oracle's Media Objects cross-platform authoring system.

Mitsubishi, 1070 E. Arques Ave., Sunnyvale, CA 94086; vox 408.774.3600, fax 408.736.5912.

Reader Service # 114

Premiere Audio Plug-In

Waves Q2 (\$99) is an audio equalizer plug-in for Adobe Premiere described as "paragraphic," meaning that you can access all parameters graphically. It offers two stereo bands, each of which can be centered anywhere between 16kHz and 20kHz. Additional parameters include mode (bandpass, low or high shelf, or high or lowpass), bandwidth, and gain.

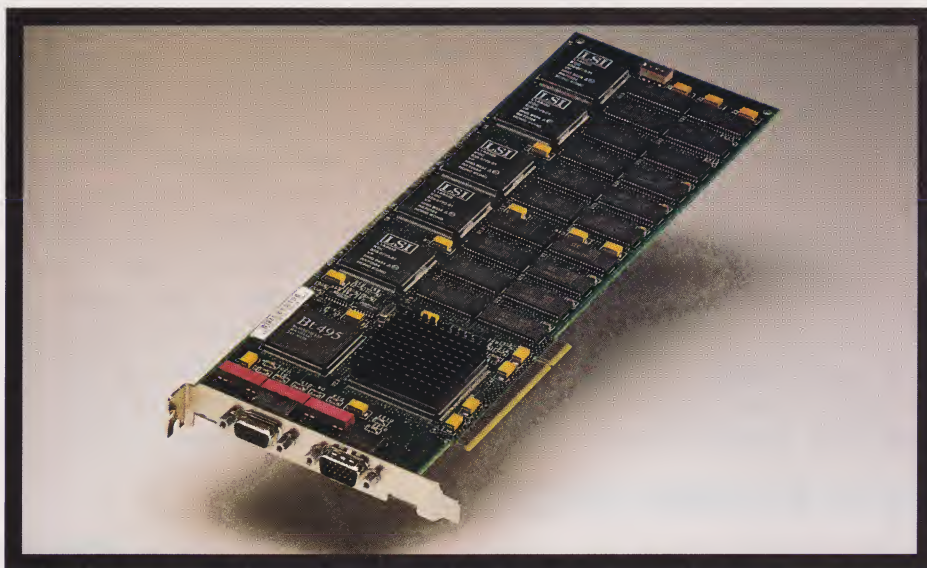
Two EQ setups can be compared, and parameters can be cut, copied, and pasted between them. In addition, any number of parameters can be "strapped" for simultaneous modification. An AutoTrim function provides simultaneous level normalization.

Waves, 4028 Papermill Rd., Ste. 14, Knoxville, TN 37909; vox 615.588.9307, fax 615.588.9472.

Reader Service #115

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2
prizes
to be awarded

Macintosh Suite

- Director 4.0 \$1,195 • Authorware 3.0 \$4,995
- FreeHand 5.0 \$595 • MacroModel 1.5 \$995
- Fontographer 4.1 \$495 • SoundEdit 16 1.0 \$379

Total value: \$8,654

Windows Suite

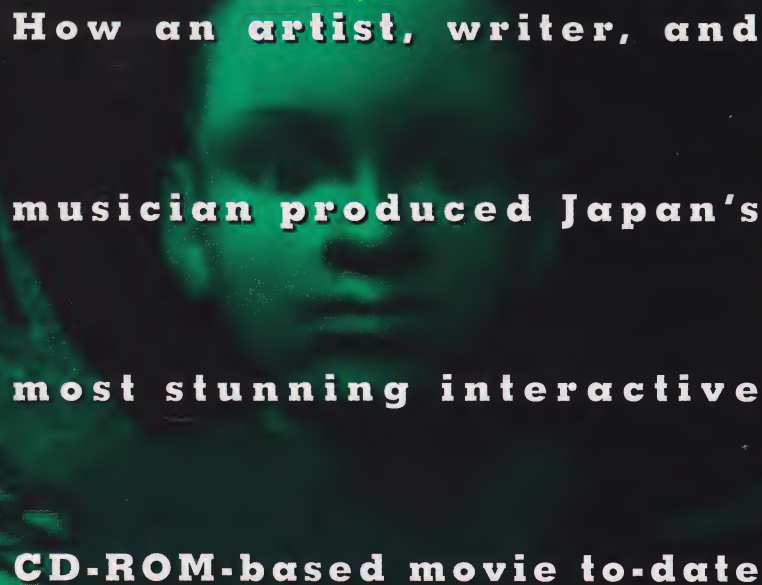
- Director 4.0 \$1,195
- Authorware 3.0 \$4,995
- FreeHand 5.0 \$595
- MacroModel 1.5 \$995
- Fontographer 4.1 \$495

Total value: \$8,275



THE MAKING of GADGET





**How an artist, writer, and
musician produced Japan's
most stunning interactive
CD-ROM-based movie to-date**

INTRO, ISOLATION.

White line train tracks emerge from a darkened horizon, reflecting only the oil-smudged strains of the locomotive's headlight barreling toward the unknown. For a moment, the train's rhythmic steam engine conjures comforting Erte-esque memories of silent films gone by. Nice. ★ Clank. Dissonant, metallic chords interrupt the brief romantic interlude. The familiar aura of an old black and white train film evolves into a film noir hallucinatory sequence. A face melts. You're on your own in a well-appointed hotel room about to embark on a journey through Gadget, a world populated by sinister characters, gloriously rich computer-generated 3D environments, peculiar contraptions, flying machines, an ever-present locomotive, and an unfolding mystery. ★ Given the singular experience of navigating CD-ROMs, independent exploration of the worlds they offer comes as no surprise. Regardless of how many characters encountered, storylines altered, or outcomes determined, the interactive audience willingly embarks on a solo expedition akin to Lewis leaving without Clark. ★ For those unaccustomed to the solo journey there may be

BY RANDY ALBERTS

*From interviews conducted and
translated by Keiichi Goto*

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some solace in the assumption that surely, back on dry land, these illustrious brave new worlds were storyboarded, rendered, and ultimately discovered by a large, reassuring staff of warm humans. Right? Group sessions are down the hall, just past the isolation tanks. . . .

"I believe that a subtle world such as *Gadget*," says director Haruhiko Shono, "cannot be built by a staff of many people. Contrary to game software, which is developed by a group of people, most of *Gadget's* graphic production, animation, and directing was done by one person."

That one person, Mr. Shono, is equal parts multimedia manager, 3D artist, and animator all in one. Over the past five years his small but prolific production team in Japan has been creating award-winning multimedia titles for Synergy of Tokyo. Their first two titles — *Alice*, featuring the art of Kuniyoshi Kaneko, and *L-Zone*, a Shono solo blast — have won praise and multimedia awards worldwide. But it is *Gadget*, recipient of the Multimedia Grand Prix MITI Minister's Prize for 1993 and *Macworld's* Best Multimedia Game of 1994, that has launched Mr. Shono and his small development team into the multimedia stratosphere.

"You could say that current multimedia works are from a field of individual creators," says Synergy's president, CEO, and producer Masanori Awata. "In Japan, a product is usually a group work production with the company name always coming first and foremost. However, my role is to provide talented artists with

a place to realize their individual mind's images. To use a Formula One racing team as an example, it's a team that prepares a high-tech racing machine for the driving genius of Mr. Shono. Working with him is very stimulating, and I was sure that as director he would create something fascinating."

Storyline Development.

It's the eyes. Glassy, careful, foreboding, dilated, sad. They're as useful as the hushed rooms, vivid transitional animation sequences, and brilliant subtitle interaction for unfolding the Gadget storyline. The bellhop at the door. Agent Slowslop in the lobby. The surreal Boy/Truth visions. Their eyes blink, cut, and stare at every encounter, tempting trust, collusion, and fear all at once.

Bewildered scientists warn of an asteroid on course for crushing Earth. An addled train passenger raves on about twitching cheeks and a numbing purple rash on his groin, all at the hand of said scientists. Who to trust? It's all in the eyes.

Gadget is a storytelling coup. If you fancy the graphic power of a CD-ROM story but sorely miss the innate semantic beauty of the ageless book, get *Gadget*. Each character speaks not through audio but through subtitles that are easily scrolled in case you missed the meaning of the rich, often riddle-like dialog clues. If you've ever read a book and were fairly disappointed with the talkie version, this approach will renew your faith in CD-ROM storytelling.

According to Mr. Shono, implementing subtitles "was not a technical compromise. Characters that speak would undermine the overall image and would make the world feel lightly. I incorporated into *Gadget* an atmosphere like that of old silent movies to keep it as quiet as possible. In this way the player shall imagine the voices of the characters, rather than that vital

trait being a given. And what's more, I couldn't take it if those voices were speaking Japanese!"

The *Gadget* epic shares much in common with the *Star Wars* trilogies, both spanning long periods of time and being told in non-sequential segments. Plucked from the middle of *Gadget's* original 19-year tale, the CD-ROM covers a two-day span. A newly released book, *Inside Out with Gadget*, was completed after the CD-ROM and tells the full 19-year story through sparse narrative and high-quality color reproductions from *Gadget's* massive cache of 3D modeled images.

And perhaps in the same manner that George Lucas developed *Star Wars* in the '70s, the Synergy team still works in a traditional manuscripting format. *Gadget's* story developer, Hirokazu Nabekura, shuns modern platforms in favor of a Japanese word processing oddity called Wor-Pro. Although not working on common platforms appears to slow down their editing process, it's a format that seems to work.

"He prints drafts out on paper and we correct them with analog red pencils," laughs Mr. Shono. "Then he goes back to his precious Wor-Pro, writes another draft, prints it, and once again we do manual corrections. This continues *ad infinitum* until we are ready to use conversion software to transfer the final hard copy into the Mac as Japanese text. The same is true for checking the action of the characters: the wire frames I created on the Mac were printed out and checked on paper first. We wrote the movements of the characters down on paper, compared them with the storyline, and did it over if there was a conflict with the storyline."

An art deco steam engine is used as a metaphor for pushing and pulling players through the *Gadget* storyline, but it was not an idea born to a devout locomotive collector. "I love machines," admits Mr. Shono. "However, the reason I chose to use a train is not out of sentiment for the good old days of the steam engine. I personally do not have such an infatuation with locomotives as to memorize types of trains, digitize scale models, etc. When thinking about a story that takes place inside a condensed moving space, I thought the unique space that only a train can fully provide was the best. Trains have a space that cannot be realized inside a car or airplane. The story can progress while the train is in motion, and all space is effectively utilized."

If the only objective of a CD-ROM-based experience is to reach an end goal, *Gadget* is not that difficult. The storyline unfolds in near-linear fashion, events occur periodically within the train and as you get out and explore each station along the engine's route. The experience does not progress to subsequent stages until you meet key characters with vital data, but ignoring the wealth of other "non-essential" characters will make solving the mystery more difficult and the experience less enriching. "There is no use in devising a storyline that cannot be realized

3D artist/animator Haruhiko Shono: "A subtle world such as *Gadget* cannot be built by a staff of many people. Contrary to game software, most of *Gadget's* graphic production, animation, and directing was done by one person."



Synergy producer Masanori Awata: "My role is to provide talented artists with a place to realize their individual mind's images."

with CD-ROM," says Mr. Shono. "The scenario and production must unfold together to achieve the overall experience."

Gear, Production Philosophy.

"The fine dust of shattered globes glitters down to the floor, a mystical experience that thirteen have done," says the crazed loon lurking around Suburbia station. Fine. But this time it's not the eyes, the riddles, or the soundtrack that urges the atmosphere of Gadget on. It's the vinyl seats. Polished to a brilliant lustre, yet worn enough from train station smudge that you can smell the cigarette burns.

Gadget is thick with atmosphere. Details abound, but not in your face. They're there for players to seek out, making each experience a unique one. The lighting effects and flora are convincing, but not antiseptically so. The powerful simplicity of wall, floor, skin, and character surface textures belie the sophistication of technique applied to create this world.

"If there was one thing I learned in producing *Alice*," says Mr. Shono, "it's that it is best not to make compromises. If you compromise, even if you dared to choose a difficult method, you will wind up with a problem later on. It is important to confront your doubt and proceed after you have solved it. For example, if you have a hardware capacity problem approaching and you think 'It'll work out somehow,' you will have an even bigger problem to solve later. Proceeding without leaving points of compromise is important in CD-ROM production."

Having said that, being able to turn what some would consider a compromise into "a feature" is just another strength for the *Gadget* team. When doling out the multimedia diet, 550 megs of disc space is devoured by full-color, full-screen animation like a foot-long tiramisu at the end of a hunger strike. But when the subject matter exudes art deco cool and silent film, black and white never looked better.

"Monochrome animation may be the largest compromise made," admits Mr. Shono. "Actually, all the animation was done in full color, but I chose to run some of them in monochrome due to problems with QuickTime 1.6 and data compression. Still, I chose to use monochrome only after confirming that it would satisfy my requirement to present larger size animation and that it wouldn't break down the world view of *Gadget*." (Note: Synergy's *Gadget Trips Mindscapes* is in full color on video and laser disc.)

The black and white transitional animations throughout *Gadget* are used to great effect. Run in full color, most would have probably netted less emotive reactions, and those in blazing color are very effective. The experience of being strapped into The Sensorama (remember the guy with the purple rash?) and the resulting acid-drenched transition sequence is, uh, the product of creative brains on powerful tools.

"I used four Quadra 700s and two Quadra



The Westend Station. By far the largest model in *Gadget*, it took 48 hours to render on Mac Quadra 700s and 950s running Electric Image. There are dozens of different views of many similarly detailed train stations, which makes the fact that one person modeled it all the more impressive.

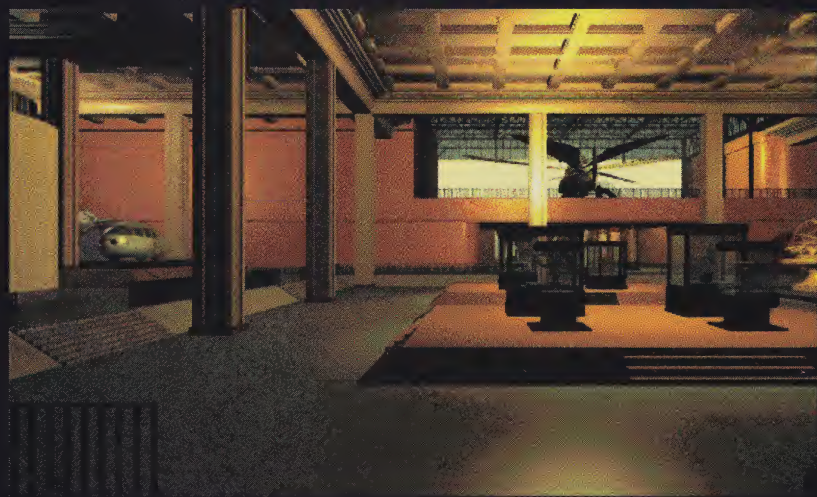


SoftImage was used to model the many odd characters you'll encounter in *Gadget* — **Form Z** and **Electric Image** were used to build and animate the myriad buildings and machines.

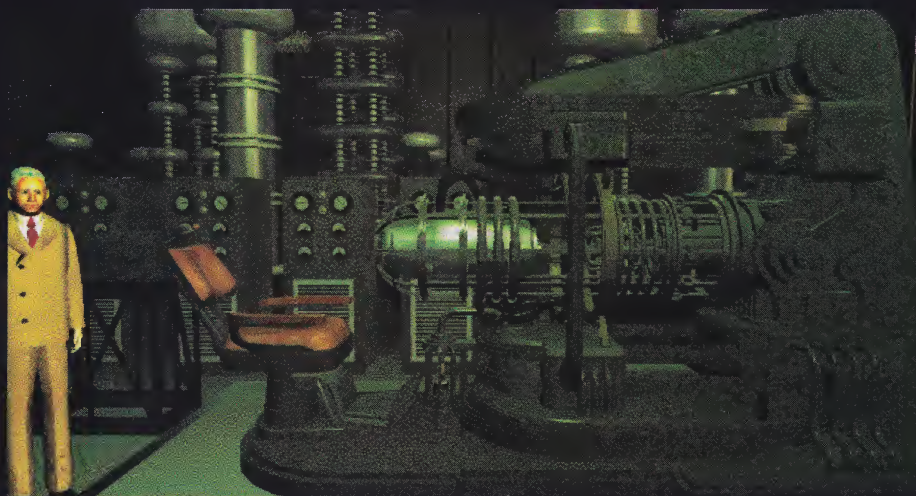


Transition sequences are monochromatic QuickTime movies, usually of the **Nova Express** leaving one station and traveling to the next.

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Exploring the Museum leads to encounters with a lot of strange machinery, including the flying machine seen in the distance here.



Professor Charles (L, created in SoftImage running on an Indigo 2XL) and one of Shono's amazing machine creations designed with a combination of Electric Image, Form Z, and Photoshop.



The Laser room. Notice the bump-mapped textures on the walls and columns of this dome. Such simple devices create the impression that the environments of *Gadget* are rich in detail.

950s during the production of *Gadget*," recalls Mr. Shono. "Each Quadra had either a one- or two-gig drive, with 68 megs of RAM. I used a Silicon Graphics Indigo 2XL running SoftImage to create the characters and faster animations. On the Mac, I used Electric Image, Form Z, Photoshop, and After Effects, each for a variety of applications." As for screen displays, "Now I'm using large displays, but at the time I was using a standard 13-inch monitor."

A 13-inch monitor. It makes the end result just that much more revealing. Mr. Shono also shunned any special graphics cards, peripherals, or accelerators, and although he made good use of his scanner in bringing *Alice* to the shiny screen, he couldn't use it for *Gadget* because it's all computer-sourced imagery. Even the Mac system software the Japanese-only speaking Shono used sported a decidedly monk-like environment under which to create *Gadget*. It was in English.

"Since it was lighter than the Japanese system Kanji Talk," recalls Mr. Shono, "I didn't have to worry about the instability and delayed localization of the Japanese system and software. This was all during an era in Japan when there were many professionals who used Macs without the now common Kanji menu bar."

Considering the complexity of the train station models, it's no surprise that Mr. Shono names them as the files that required the longest rendering times. For example, a single scene in the roundhouse took 48 hours to render, and it's possible to wander around numerous views of that area.

In the early stages of development a few texture maps were taken from a texture library called Wrapture Reels, but even those served primarily as templates for Mr. Shono's own original hand-painted texture maps.

After creating three award-winning CD-ROMs in the last four years, Mr. Shono offers two bits of sage advice: Don't even think about new gear during the production cycle, and it will take a heck of a lot longer than you ever thought to finish.

"It can't be helped if a serious bug delays your production," says Mr. Shono, "but there is no end to the problems if new hardware and software is used during production. It is also not desirable for the environment to change part-way through. In other words, if you play with something new you've also wasted a lot of extra time in getting back on track, and you eventually pay for it."

As for time management, "Doing my first

CD-ROM production by myself, I realized just how much time this all takes up. Even working 10 to 12 hours a day, every single day, *Alice* consumed one full year of my life. I was fatigued mentally and physically from that experience, so you could say that I produced *L-Zone* as a diversion that took less than six months to complete. It contained virtually no storyline, and I did it in an easy, freeform manner using ideas as they came into my mind."

Synergy brings in rookie debuggers to help them fine-tune throughout production. "We call in outside amateurs who know nothing about our project for debugging," says CEO Awata. "We have them play *Gadget*, and then we correct any problems on the spot. The corrected version is available the following day. Mr. Nabekura also participated in the debugging sessions to discover the 'idea bugs' before they were committed to disc. The product is not complete until we have this 'quick' production system in place to remove all bugs."

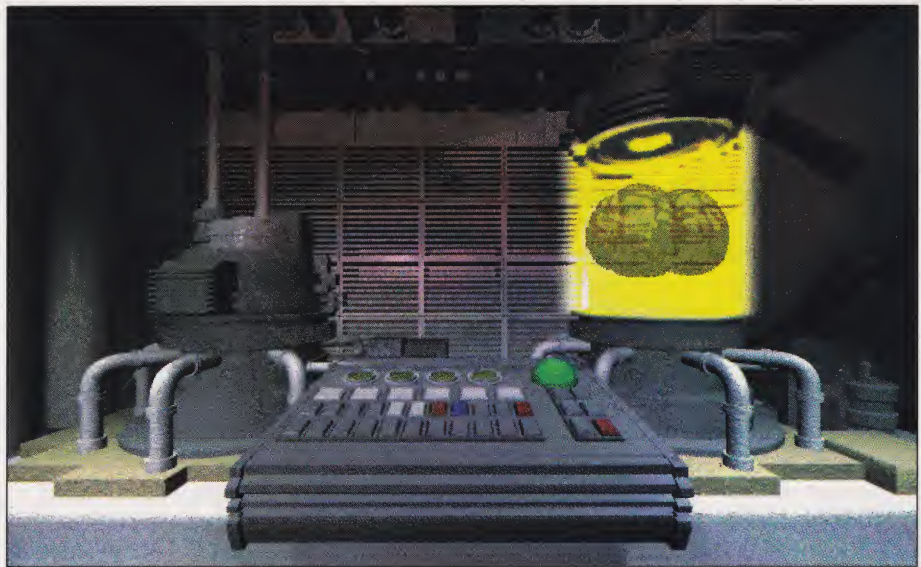
Backgrounds, Costs.

Bugs. There aren't any bugs in *Gadget*. Could they have evaporated from the magnetic field distortion and earthquakes caused by the on-coming comet? The radio went dead after the last scratchy emergency radio message, so it's useless to wonder. Slowslop is pressing again, blathering some nonsense about me being the "Chosen One" to take "the Mother Ship to the Holy Land." Worry, don't be happy.

Both *Alice* and *Gadget* have a way of sucking you in without smothering, unless you're claustrophobic. A thick vibe sprinkled with airy visions on top, the Shono style is evocative to the end. "As I refined my production plan, I came to the conclusion that realizing the *Alice* world view was only going to happen making good use of CD-ROM's interactivity to draw the player in. As for *Gadget*, right from the start I had a feeling that this would become a heavy undertaking."

Thirty-four-year-old Haruhiko Shono studied graphic design at Kyosyu Sangyou University and began experimenting with different media while in graduate school in 1985. He formed Radical TV, a creative group that mixed live performance with gigantic television screens and devised *TV Wars*, a massive undertaking for a Japanese Science Exposition. Mr. Shono then went on to produce works in video, high-definition television, and computer art. He also art directed magazines and designed video games. He won his first award in 1991 for *Alice*.

"Beginning with Radical TV in 1985, I mainly turned my hand toward the video arts," recalls Mr. Shono. "At that time I was using Amigas to create video. When I was working on *Alice* I started using Macintoshes — I believe a Mac II at that time. Still, even then I had the impression that Macs could not handle animation



L-Zone is an interactive environment built by Shono in six months (!). It features no plot whatsoever, just endless rooms full of odd contraptions like this one. Manipulate the controls in the foreground and a giant floating brain and a crystalline meteor-like thing appear.

very well. Then, in 1991, I produced *L-Zone* using 3D software (Ray Dream Designer) for the first time, and it's been Macintosh ever since. QuickTime came out at that time, so I could effectively implement more animation. In the spring of 1992, Mr. Awata proposed that I do another project for Synergy, which eventually became *Gadget*."

Synergy was formed in 1985 by Masanori Awata, the same year that Mr. Shono's Radical TV was piling up massive screens on live stages. Originally set up as a magazine production house in Tokyo, Synergy hired Mr. Shono to handle art direction for a new music magazine they'd taken on. That eventually blossomed into *Alice* when Mr. Awata's vision of multimedia required more than just process four-color to realize.

Fueling their inhouse multimedia studio calls for massive investment, and Synergy has encountered more than just feisty bean counters in funding their endeavors. "I now understand what a massive investment in equipment is required for us to produce a CD-ROM work within our own company," says Mr. Awata, "but I knew that CD-ROM multimedia was the connection between technology and our desire to create something new and interesting in an original way."

Even the most dedicated artist will suffer sticker shock when stuck with the check, or at least when looking for someone else to cover it. "If one is considering overall costs," Mr. Awata offers, "the requisite investment in the equipment should be included. However, no one we approached offered to cover the necessary equipment. It was then that I decided to use subcontractors as cheaply as possible, a unique tendency in Japanese business."

For comparison's sake, in 1990 a one-gig hard

drive cost \$12,000 in Japan, and the Mac-based TOPiX production system Synergy purchased cost over \$100,000. At that time, the conversion rate from dollar to yen was \$1=150 yen, and the overall Japanese economy was pinching equipment costs even higher. "Hearing of the success of *Alice*," recalls Mr. Awata, "a company appeared to provide some of the budget for *Gadget*. We began production, but being affected by the popping of Japan's bubble economy, this sponsor suddenly informed us they would have to cut the original budget by 40%! In spite of such great costs, we purchased the equipment and set up our own studio, where we still do all of our production today."

Also of concern for Mr. Awata was establishing overseas partners and distributors for Synergy. "One sponsor talked of selling the product overseas, but actually did nothing. We also heard from several American companies, but even if they initially presented a rosy picture, as talks continued to develop the lawyers stepped in and gradually reduced the scope of what they expected to get in the contracts. There was also a time when talks would proceed smoothly, but the person in charge suddenly got fired and talks broke off. Many American distributors offered to work with us, but most of them just wanted the copyright, even though they did not participate in the production."

"When all was said and done, it seemed we had no choice but to distribute the work ourselves overseas. We established a distribution company in America, and this eventually evolved into Synergy Interactive."

Established in 1994 in Los Angeles, Synergy Interactive handles the U.S. market for *Alice*, *L-Zone*, and *Gadget*, including customer support and American packaging. They've released

THE MAKING of GADGET

a number of 3DO titles and recently published several volumes of high-quality photographic art on CD-ROM. The *Photopaedia Series* includes works of respected British and Japanese photographers painstakingly ported to CD-ROM by the Los Angeles staff, which numbers 12 people. Interestingly, the Tokyo-based staff totals 11 people.

Synergy Interactive's Senior VP Dan McManus enjoys working with Synergy/Japan in bringing Mr. Shono's brand of entertainment to the U.S., as well as filling the pipeline back into Japan with U.S. products. "We're bringing titles in from the Japanese market and localizing the packaging, but with our selection as to what's strong enough to come in. And vice versa, we'll move American titles into the Japanese market." Translating *Gadget* text from Japanese to English was handled in Japan by a man known simply as David, though on future

projects, Synergy/U.S. will be handling most translation/localization.

As for the means of delivering digital entertainment, Synergy appears prepared to take advantage of the many trends sure to have an effect on the future of multimedia. "We are a next-generation entertainment company that develops, publishes, and distributes digital content," states Mr. McManus. "Right now it's on CD-ROM, but we're poised to not really care what the delivery medium is. We'll use whatever makes the most economic sense, but we're more involved with the content. We know that the delivery media will evolve to where there may not be a physical medium involved at all. It may come through the Internet, telephone lines, or some other means of direct delivery into the home, but we're developing content to adapt and work equally well regardless of how it will be delivered in the future."

In line with a developing trend for serving up multimedia credits, Synergy endeavors to push the creative individuals to the forefront of recognition. "We are very dedicated to progressing the art of the creative people we work with," says Mr. McManus. "We're not so much interested that the Synergy name be the biggest on the marquis as much as letting the artist shine. I think we are reaching the stage in multimedia distribution where the artists are becoming the stars, rather than the well-known publishers who are putting the products out there. We want the creator to be the star. What's happened with *Myst*, that's the beginning of a trend of putting the face of the creators up front."

Gadget's level of interactivity was tempered with a dose of old-fashioned musician's prudence. "*Gadget* is a different kind of storytelling," states McManus, "interactive, yet linear. We didn't want to put in interactivity just for the sake of proving we could do it. That would be like a musician who uses weird, complex chords just to prove how technically capable they are even if they sound bad in the song. Up until now the showcasing of technology has been the reasoning behind a lot of multimedia development."

Music and Effects.

Every time the Nova Express plunges down the tracks its ominous, shuddering soundtrack moans from within and without the hull. The Big Band Loop From Hell. Funeral dirges have instilled more optimism, trust, and feelings of goodwill than this apocalyptic backup band. Passing under the Downtown Station tracks, there's a low rumble that ripples down the corridor and forces a glance back over the shoulder. The Boy/Truth vision again. He floats, eyes barely lit in the dim light, then corkscrews down the corridor drain. A sound echoes from somewhere off the walls, hardly human in origin. Must turn off the audio.

If *Gadget's* storyline is a campfire lighting the

way, then the sound effects and music are the bogeymen lurking just outside the flame's reach. Never too obvious or inappropriate, Koji Ueno's command of the descriptive soundtrack is surely the result of past association with Shono projects. Industrial Orchestral comes closest to describing these train-oriented tracks that accompany most of the transitional animation sequences. Rhythmic tension builds until the point of view again comes back to the storyline.

"Mr. Ueno, in charge of all music, is not only the same age as myself," says Mr. Shono, "but also has the same background and point of view, so I was sure that we shared a common world view before *Gadget* began to take shape."

Mr. Ueno did all his recording in his home studio using an Akai S1100 and E-mu Emax samplers, and Passport's Alchemy sample editing software running on a Mac IIfx. All MIDI was recorded into an NEC PC-98Ne computer using ReComposer software. All tracks were then recorded into an Akai DD1500 MO system, with everything eventually being mixed down to DAT. Included on the DAT mixes were special effects cues designed by Ueno. "The first time I worked with Mr. Ueno was on *Gadget*," says Mr. Shono, "but I was already familiar with his composition skills. With respect to synchronizing the screen and the music, he created music under the precondition that it may not match up. I remember asking him to write music that would also work okay out of synch."

More traditional sound effects were gathered and recorded on DAT by Kenji Kimura, and then further edited and transferred down to Mac soundfiles by Mr. Shono — using only a pair of headphones and the internal Mac speaker. They are well placed, detailed, and convincing. The long cricket loop atop the Observatory rooftop garden avoids the usual nature loop syndrome. Moving from coach to coach along the train is where the ambient reverb really shines, spreading across the stereo field in the vestibules and then pinpointing back in the hushed environment of the coach. Highly reflective marble walls and floors in the train stations are treated with a variety of plate reverbs, and the expansive locomotive engine roundhouse turnaround area (where the Nova Express revolves slowly before leaving the player alone) is drenched with just the right amount of large room.

Also used to great effect were the static-laden emergency radio transmissions, broadcast over circa 1920s antique radios. Swirling amongst a dizzy phase shift, these vital, scratchy messages cut in and out and eventually faded to a sea of white noise. Don't even try adjusting the dial, because the comet's magnetic disturbance is getting too close to Earth. Jules Verne and H.G. Wells would have both been proud.

The Future.

The interactive media business can still learn much from a forebearer, the movie industry. In

GADGET, THE SPECS

Total Cost of Production

about \$2,000,000

Time it Took to Make

N/A

Number of People Involved

Japan: 11

Synergy/U.S.: 12

Number Sold

100,000+

Suggested Retail Price

\$79.95 (street price about \$45)

Development Machines

Graphics and Authoring: Four Quadra 700s; two Quadra 950s w/1GB or 2GB hard drives and 13" displays (!) running Electric Image, Form Z, Photoshop, After Effects, and Director. Silicon Graphics 133MHz Indigo 2XL w/32MB RAM, 1GB hard drive running SoftImage. Audio: Mac IIfx running Passport Alchemy sample editing software, Akai S1100 and E-mu Emax samplers recorded to DAT.

early movies, cameramen well-versed in movie technology directed the productions and filmed, too. In that respect, computer graphics creators are becoming the appropriate directors for today's multimedia works. According to all involved on both sides of the Pacific for Synergy, opening up new avenues for talented artists of all persuasions is the real excitement, even with the technical difficulties.

"The director wants to create something that the director likes," states Mr. Awata, "but multimedia production can require too many compromises with respect to time and technology for the pure artist. Even if you get tired of something partway through production, if you still like it as an artist, you should be able to put up with it in the end [laughs]!"

In the still young multimedia industry, Synergy sees a constant challenge to their own adaptability. "At the time we produced *Alice*, double-speed CD-ROM drives had not appeared on the market," says Mr. Awata, "so we thought we were producing it for a potential audience of only 3,000 single-speed drive owners. We never expected CD-ROM as a commodity to evolve into the international market we see today. This field has great potential ahead."

As for oldware, "I myself do not think that books or audio CDs will go away. In other words, CD-ROM is not a replacement medium, and in fact, it's diversifying. So I would like to develop artistic works for each diversified medium without selling part of a work in its non-native medium. We want to carefully create a work for each medium. Then, with respect to CD-ROM, we would like to develop our own methodology and our own rules to follow."

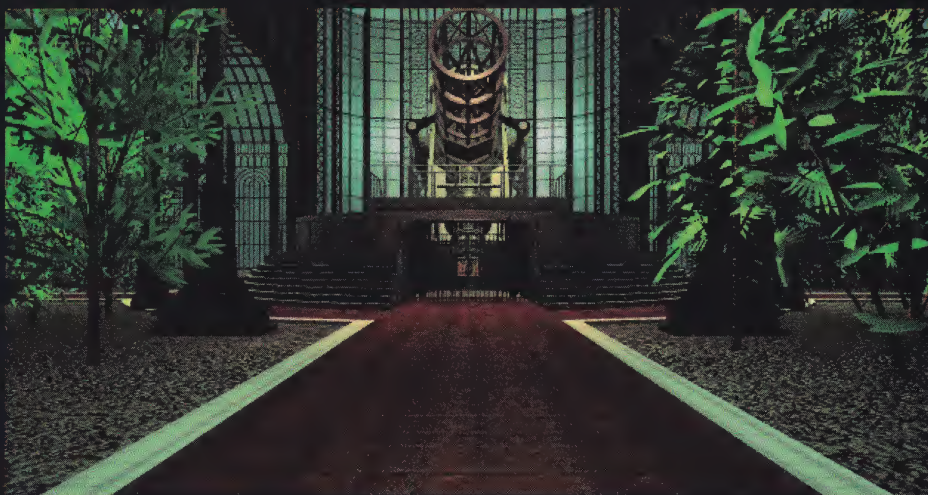
Epilog.

It all comes back to the hotel room. And The Sensorama. Either the storyline has twisted full-circle back here, or room service has made a huge mistake. Strapped in, fear and flight take hold as the experiment, unsuccessful after thirteen cases of purple groin rash, begins the fourteenth attempt. Agent Slowslop is looking an awful lot like the Boy/Truth in a mystical vision, or maybe it's just nervous sweat in the eyes. The pulse rises. Surely this is the end of Gadget. Turn around and yikes! The boy is standing there, very close, eyes misty, as he begins to float backward into the Mothership. Trust the Boy, trust the Truth.

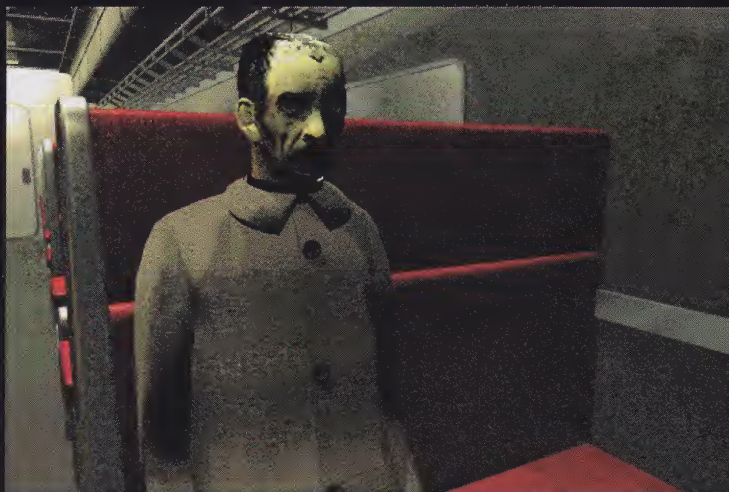
A twisting, dissonant score fades, as does the screen, to black. Credits roll, and the menu bar appears like a familiar ladder, up and out of a deep, enveloping pool. ☸

ABOUT THE AUTHOR

Randy Alberts is a writer, musician, and computer art enthusiast living in Pacifica, California.

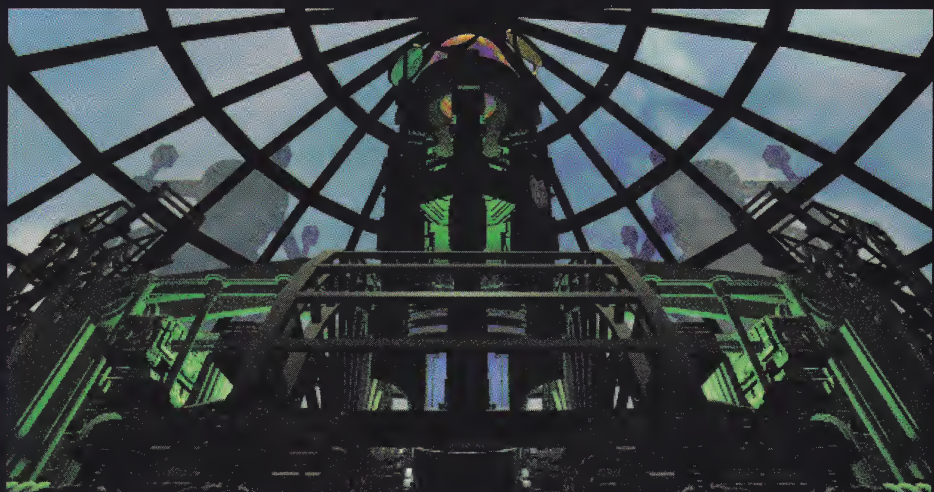


Gadget is not all sterile buildings, as you can see from the flora and fauna lining the walkway leading to the Observatory. Note the mood set by the lighting on the plants and telescope.



To a metallic whine, the pain drilling through my skull,
I began slowly to drift into unconsciousness

Dialog is never actually heard, but rather presented in captions, lending to the surreal atmosphere and making localization for markets outside of Japan easier.



A view from the Ark's landing area. Dramatic camera angles, lighting, and atmospheric effects make Gadget's heavy machinery look gargantuan.



ILLUSTRATION BY MODERN WORLD MESSENGERS

INTERACTIVE STORYTELLING

A CRITICAL LOOK AT AN EVOLVING ART

O PART ONE: FROM THE BEGINNING

Our stories are who we are. That is true both personally and culturally. It has been true since humanity was nothing more than a scattering of nomadic tribes. It is true today. And it will be true as long as there is something that calls itself human, no matter how unrecognizably gene-spliced and digitally augmented those future souls may be. Story is identity. And storytelling is the oldest, most powerful of all the arts, one of the key reasons — perhaps *the* key reason — that we communicate. Our means have been shaped to this end. ■ Therefore, whenever we invent a new medium of communication, it inevitably struggles to encompass the needs and requirements of storytelling, expanding itself in the process and sometimes redefining how storytelling works. ■ Some 2,330 years ago, the Greek philosopher Aristotle summed it up this way in his treatise on *Poetics*: “However that may be, it did spring from an improvisational beginning; it did expand gradually, each feature being further developed as it appeared; and after it had gone through a number of phases it stopped upon attaining its full natural growth.” ■ Aristotle was speaking about the dramatic theater of his day. But just such a process is happening now regarding storytelling in the realm of interactive electronic media. ■ The interactive part of the picture isn’t all that new. Some paleolithic Siskel and Ebert could always have shouted the tribe’s storyteller down across the sparks of the cookfire, changing the re-telling of the hunt. But we have added computers to the mix, and computers rewrite the storytelling equation on a fundamental level. They take audience participation to a new and utterly unprecedented place. In fact,

BY CONNOR FREFF COCHRAN

INTERACTIVE STORYTELLING

pushed to their logical extreme, they destroy the very concept of audience — turning everyone into either an active collaborator or a unique, original creator.

This may or may not be a good thing for storytelling. The jury is most definitely out. Sometimes you can change something so much that it loses its potency. Storytelling's power lies in its twin abilities to move us and express who we are . . . but the interactive fictions released to date do the latter more by accident than on purpose, and — aside from delivering carefully packaged adrenaline jolts — have never moved us, never even come near to making us laugh or love or cry.

But must it always be that way? Or are we just too close to this new medium's birth, no more aware of what's to come than the people who queued up to put nickels into flickering kinetoscopes could have guessed at the storytelling power that movies would someday have?

DRUM ROLL, PLEASE

Hi. Going in, you have to know that where storytelling is concerned I am a curmudgeon. A *demanding* curmudgeon. I was that way in childhood, when by default I wound up inventing all the plots of my playground gang's imaginary adventures, and I am still that way today, at 40, as I shift gears from magazine writing to the glamorous schizophrenic world of writing screenplays for Hollywood. To me, stories are incredibly important things.

Given this conviction, you might assume I'd have strong pro and con opinions about the burgeoning field of Interactive Fiction. You'd be right. That's why I jumped at the chance to examine the issue of storytelling within this evolving medium. Armed with editorial permission I gathered together miscellaneous bits of multimedia hardware and 20 different story-based CD-ROMs. Because of publishing lead times and the constant stream of new product, there was no way to be comprehensive or up-to-date. All I could seek was a kind of "average snapshot" of today's interactive storytelling art. Accordingly I sought out a wide range of material, aimed at an equally wide range of audiences and age groups.

The Big Interactive Fiction Sweepstakes of 1995 began not with a bang, however, but with a dull thud: the sound of my forehead hitting the desk in frustration.

Curses on primitive, still-evolving media. Plays, concerts, movies, and television have

worked out their respective ground rules. All I have to do to see a film, for example, is buy my ticket (and my popcorn), sit down in the dark, and let the picture roll. My only conceivable worry is whether the automated projection system has been set correctly so that the picture is in focus and the sound neither too soft nor too loud. Breakdowns are relatively rare occurrences, making it easy to relax and focus on the unfolding story without technical distraction.

But multimedia in 1995 is a different kettle of fish, many of them rancid. Getting started on this article proved endlessly difficult.

The agonies I suffered can be summed up in two nouns, *hardware* (inadequate) and *software* (incompetent or incomplete).

Typical hardware headaches included CD-ROM drives that would not function at all or else work for a time and then mysteriously die; memory that was never quite enough; video that stutter-dropped frames; audio that glitched; and every IRQ/address/DMA conflict imaginable. Most of these were solved, in the end, by Darwinian evolution. I rearranged, upgraded, or outright discarded everything that couldn't be made to work until I wound up with a power-tool system that finally did the job — a 100MHz Pentium-based PC from Packard Bell sporting 16 megs of RAM, a 1.2 gigabyte hard drive, a Roland RAP-10 audio card with Roland MA-12 powered speakers, and two quad-speed CD-ROM drives, one from NEC (internal) and one from Plextor (external). Even equipped with such a beast, though, I still ran into many problems. I frankly do not envy anyone out there trying to explore interactive fiction on the kind of gear most stores hype as "multimedia machines." (Macintosh mavens should hold their tongues. Such headaches are just as common in the Mac world, different only in specific kind and not in general annoyance.)

As for software headaches, they fell into three categories: *won't load*, *won't run*, and *I hate you*. Nearly all of these proved less easy to fix than the hardware, and as a result I spent humongous periods of time talking to strangers over various technical support lines. Sometimes that worked. Other times it led to worse problems, like one company's blithe suggestion that I should update the Cirrus Logic video drivers supplied with my computer. This would have been a brilliant and useful idea if the fellow had correctly identified my machine's video chipset. But he hadn't. The resulting mismatch of driver, chips, and file directory trashed my hard disk to the point where only reformatting could make it friendly again. That, and finally getting the right drivers from Cirrus Logic, a company that supplies half the pre-installed PC video chips in the country but has only two (!) tech support people on staff, one for each coast.

How bad could it get? This bad: in the end, after three months of testing, four of the original 20 CD-ROMs on my selection list had to be

scrubbed because *they never worked at all*. Here are the 16 that remained:

Under a Killing Moon (Access)

MTV Club Dead, Are You Afraid of the Dark? The Tale of Orpheo's Curse, and *Dracula Unleashed* (Viacom New Media)

Alistair and the Alien Invasion (Simon & Schuster)

Blown Away (IVI Publishing)

The Madness of Roland, *Quantum Gate*, and *The Vortex* (Hyperbole Studios/WarnerActive)

Myst (Cyan/Broderbund)

Sam & Max Hit the Road, *Dark Forces* (LucasArts)

Beneath a Steel Sky, *The Seventh Guest*, and *Legend of Kyrandia 3* (Virgin)

Flash Traffic (Time Warner Interactive)

The final thing you should know, as we dig in, is that this is the first in a series of three articles. Faced with a big, rambling topic, I had to choose some kind of structure. What better way to understand how storytelling works in an interactive medium than to break things down against the classically tested verities of *beginning*, *middle*, and *end*? These structural elements define every story ever told. If we can observe how they get stretched and squashed by this new medium, we will learn a lot about its possibilities and limitations.

The focus here is on beginnings.

Under A Killing Moon

The opening sequence of this popular package from Access makes a simple choice regarding interactivity: it opts out. There's not a whit of selection involved, aside from choosing to view it or not.

It's a loooong intro, too, made up of many different visual looks and contexts. The overall nod is to the flow and feel of cinema — even the aspect ratio of the video is the same as that of a movie screen — but it's a real grab bag of styles.

- First up after the title is a fuzzy-soft shot from space of the sun, the Earth, and the moon, with voiceovers by James Earl Jones and a definite non-actor. Jones appears to be playing the part of a very tired god; but aside from introducing the name of the story's viewpoint character, Tex Murphy, and announcing "Look, everybody, we hired James Earl Jones!" this sequence doesn't seem to accomplish or mean anything.

- We then leap boldly into the past for a series of b&w video clips of W.W. II, framed to look vaguely like scenes from a wartime newsreel about the fall of Nazi Germany. As these images go by, there is some mention of a dangerous cult.

- Then we see some lines from an Edgar Allen Poe poem and hear Jones' voice reading them.

- Our fourth style shift jumps us to a fly-through computer animation showing a broken and deserted church populated by mysterious black-robed figures (the aforementioned cult, I'm guessing). One of them holds up a small statue of a dove. The camera zooms past it to see

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*Just kidding. Metro-Goldwyn-Mayer Pictures Inc., Columbia Pictures and Warner Bros. Inc. remain unrelated film production studios. We've just merged some of their archives.



INTERACTIVE STORYTELLING

a dove-shaped figure in the broken center of the church's stained glass window, then swoops through and off into space, toward the moon.

- Cue title credits all over again, this time followed by a list of actors and other creative and technical credits.

(Me, I'm getting dizzy. What the heck is this hodgepodge all about? No answer is forthcoming.)

- Shift No. 6. Now the screen says SAN FRANCISCO 2042 A.D. and we are in ersatz *Bladerunner* territory, complete with flying car, misty night, and hard-boiled detective voiceover.

- Visual textures change again as we jump to the interior of Tex Murphy's office, where real people shot in video are moving around inside a quasi-real CGI environment. We still have no control or say in what is happening. All we can do is watch and listen as Tex Murphy and The Colonel (aging actor Brian Keith) play out a *noirish* love/hate relationship. Eventually the scene comes to a close when Tex falls over backwards in a slapstick drunk routine (not just a drinker, but an accident-prone drinker).

- Now we're prompted to put in disc #2, and the beginning isn't over yet! Thankfully this expository sequence is brief, after which things finally get interactive. The program allows me to move around within this combined science fiction/mystery world and choose what to look at, pick up, open, say to people, or try to do. I am behind Tex Murphy's eyes, at least some of the time, out to find a job in a scuzzy world of mutants, murder, and incipient mayhem. Presumably that job will connect to all the different elements that we've just experienced, but the how of that is anybody's guess. Certainly there is nothing in the intro itself to tie any of them together.

In a movie theater, no audience would sit still for this.

The purpose of a beginning in storytelling is several-fold. One of its tasks is to set the stage. Another is to introduce the audience to some critical action. But its most important job is to hook our interest; we have to *want* to continue, or it has failed.

By such a measure this is not a strong opening. After the whole crazy mix had gone by and I could start exploring the story itself, my main reason for continuing was not involvement or amazement, but a perverse curiosity as to whether the story was ever going to get better.

The writing is bad. The performances are mediocre; even James Earl Jones, the consum-

The images at the beginning of *MTV Club Dead* are terribly grainy and totally effective at the same time, a real triumph for the graphic designer.



mate pro, is phoning it in. The editing is raw. The camera angles are boring. The constantly changing visual styles don't add up to anything. The video animation engine doesn't allow both of the live-motion characters to move at the same time, so one always stops dead still when the other talks, and their screen resolution shifts depending on whether they are shown in close-up or long shot. From a technical point of view, it is a horrible tangle of clashing elements. From a story point of view, especially from a science fiction story point of view, it is laughable: 2042 is 1942 with flying cars and mutants, except that everyone is dressed like it was the '90s. And while I suppose blood cults and Nazis will figure in eventually, given the intro, I'm not sure I won't be completely bored by the time they bow onto the scene.

Maybe things will get better as we move past the beginning, into the action of the story, and become interactively involved. But that's for the next installment in this series. Right now we're going to jump programs and see if we can find something a little more intriguing.

MTV Club Dead

Brilliant, just brilliant. This one's a gem, a real gem.

Those are the words of one Sam Frost, a "cyberplumber" recruited out of prison to do something (we don't know what) at the Alexandria (self-proclaimed "Hotel for Your Mind") on behalf of the business lords of MetaCorp (who really are *not* friendly people). Sam says these words at the end of this story's brief but intense opening sequence. In stark contrast to our wordy previous offering, they are all that he says.

You know what? I'm inclined to agree with him. This is a great beginning. I find it growing on me with every repeat.

One reason for this is its brevity. The makers of *MTV Club Dead* have no interest in expository lumps; instead of hitting you over the head with clues and reveals, they tease you. Two other reasons are the solidly professional direction and

editing. In keeping with the visual style of their banner company, things are paced mainly in fast cuts and almost subliminal flashes, while camera angles jump effectively among extreme long shots, close-ups, overhead shots, tilted shots . . . you name it. If it is in the lexicon of modern camera technique you will find it here. The result is surprisingly satisfying in that it creates its own kind of consistency. Though it never stands still, it always flows.

After some static and rumbling in the soundtrack on startup, a simple grunge rock track begins pounding away under full-screen video title credits and graphics. These images are terribly grainy and totally effective at the same time, a real triumph for the graphic designer. Same thing can be said for the whole sick greenish look of the Alexandria and its odd decorations and appurtenances. While this game has many of the same controls as others, their design is singular.

We get our first look at the Alexandria as Sam wakes up, face-down, on the metal floor of a bathroom. He just happens to be sharing this bathroom with a corpse, a discovery he takes very badly. By the time he has retched his guts out into a bizarre looking commode (discovering a strange techno device within it in the process), then stumbles to his feet and makes his way out into the bedroom, we're interested. After a brief holographic assault welcomes him to the Alexandria and he responds by falling flat on his back in exhaustion, uttering the words quoted above — we're hooked. Maybe even a little concerned. There's a hint here of at least the possibility of emotional involvement with Sam and his situation.

From diverse roots in rock, German Expressionist cinema such as the classic silent *Cabinet of Dr. Caligari*, and cyberpunk, *MTV Club Dead* manages to create a single, unifying esthetic. Whether the rest of the experience turns out to be interesting or not doesn't really matter, though I'm crossing my fingers that it will prove to be. Right now I'm just glad to genuflect in the direction of the writers and designers for seizing

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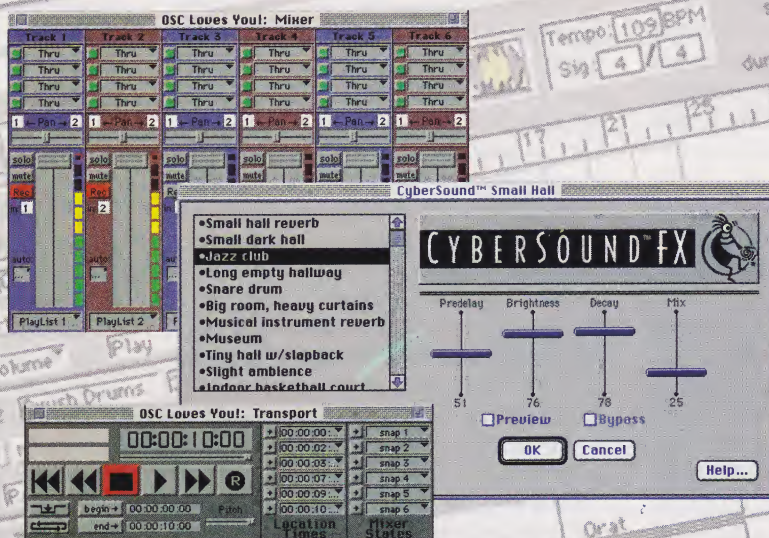


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INTERACTIVE STORYTELLING

my interest instead of numbing it.

An interesting question in a storyline based on mystery, such as this one, is where the beginning ends and the middle starts. This story successfully blurs that distinction. I'm saying, for the sake of moving on, that we leave the beginning behind as we start to explore the VR palace that is the Alexandria . . .

. . . but I'm really not sure. I'm nervous; afraid I might have missed something. *Just like Sam Frost.* And that, friends, is good storytelling.

Are You Afraid of the Dark? The Tale of Orpheo's Curse

This package flies under the flag of a different cable network, the kids channel called Nickelodeon, and is squarely aimed at a 10- to 13-year-old audience. Unsurprisingly, given its provenance, each successive beginning has the feel of a television program.

Each beginning? That's right. Structurally there are at least three of them. Maybe more.

The stage for the first opening is set with a foreboding computer picture of Orpheo's Palace, a locked and deserted theater. A teenage boy's earnest voiceover tells us that Orpheo was a great magician and alludes to an undescribed tragedy that closed this place many years before. The same voice presents the brother and sister who will be our personas in the story. As they are introduced, we also see them, in a slideshow-style presentation of still images.

At which point I began to wonder if anyone was paying attention during production, because the sister is black and her brother is white. Hello?

Anyway, the young girl is eager to find out everything about this place, while the older boy is reticent. We know this because we hear them talking to each other as we move through the available environment. It is very constrained, which forces us to move down the alley at the side of the theater and eventually reach the backstage door. There is interactivity, but it is limited to doing things like looking into a garbage can (a cat jumps out) or examining the fading show posters on the walls. If you really explore every corner of this alley, you are rewarded with seeing the shadow of a headless woman moving in view through an upstairs window. Otherwise you're just pushed to the stagedoor. It's locked but opens by itself a moment after you try it. Walk inside and this first beginning ends with the laughably lame appearance of a female ghost, whose head falls off and bounces toward you.

After an incredibly long credit crawl in *Dracula Unleashed*, we get the ornate semi-Victorian control frame that remains through the story. Inside the frame is a video sequence that takes us back to December 1899.



Cut to second beginning, which is done in full-motion video. It's a multi-racial, politically correct group of boys and girls sitting around a campfire. They talk directly to us in the "smoothly scripted, everybody talking in turn" style of slick television. We learn from them that they are the Midnight Society, and they gather here to tell each other scary stories. The tale we've heard to date has been set up for us by the group's nominal ring-leader, The Boy in Glasses, whose voice we've been hearing from the start, and now we're supposed to continue the story for ourselves if we'd like to join. The title is grandly announced, a handful of flashpowder is tossed in the fire, and (poof!) we are off to beginning number three.

This one changes depending on what you do. I encountered at least two variations, and there may yet be more I didn't find. What they all have in common is that you are back in the theater, the head turns out to be wax, the magician Orpheo appears, and the young girl is separated from the older boy and caught by herself in a puzzle. Once she fell through a trapdoor and was trapped in a long, cobwebby corridor. The other time Orpheo transported her to a room full of a collection of weird stuffed animals and curiosities. As before, the technique over this little piece of story arc is a string of changing still pictures and lots of digitally recorded dialog. Once you land in place and Orpheo leaves, things return to standard "moving around inside an environment" mode.

Does this work? It's highly episodic, but that's not necessarily bad. Shared campfire ghost stories do tend to be that way, as people trade off on telling the tale. And it is also quite didactic, but that's okay, too, because the audience is younger and the dialog has to make up for the lack of moving visuals.

What it isn't — yet — is very interesting. I am 30 years too old for this style of storytelling, true, but even allowing for that I don't think Orpheo's producers have successfully made this into its own thing. It feels like a translated television show, not a story, and with every pause I half

expected to come across a string of commercials.

Note to everybody: A beginning has one shot to hold on to an audience's interest. They are already involved going in. The trick is to keep them involved. Shifting in mid-stream doesn't do that. This story would have been much more captivating if it had started with a better-written Midnight Society sequence that led us into Orpheo's theater and then let us go. As it is, this story loses us and then has to fight hard to win us back again.

Dracula Unleashed

First released all the way back in 1993, this is an older product. It shows. There is scant integration between the movie-like beginning sequence and the game/story itself, and no interactivity, either.

What you get on startup is an incredibly long (for a game) credit crawl, with white letters fading to red and then black against a black background, while an 8-bit recording of Carl Orff's *Carmina Burana* thunders away in the background. The same music has been used repeatedly in films and in movie trailers, and while appropriate, it is sadly overused.

When this is over we see the ornate semi-Victorian control frame that will stay with us for the rest of the experience. Inside the frame is a video sequence that takes us back to December 1899. It starts with a poorly done expository lump as our Texan hero, the brother of the Quincy Morris character in the original *Dracula*, speaks to his dead sibling's tombstone in a fog-shrouded English cemetery. This is thankfully short, shifting in flashback to an evening a few days earlier, with young Morris being presented for membership in the ever-so-exclusive Hades Club. Here the exposition is more tolerable, because it is more natural, flowing out of the conversation of strangers just meeting for the first time. On the other hand, the acting is all over the map. One of the Brits is brilliant (I'd bet he was actually English), the other is fair, and Morris

Continued on Page 36

Rocket Science's **RON COBB**

A HOLLYWOOD DESIGNER TALKS ABOUT GOING INTERACTIVE

Most of the faces you see staring into computer monitors in the design groups at game companies are young. Very, very young. This is not surprising in an industry dedicated to boosting the adrenaline levels of an audience consisting mainly of adolescent males. What is surprising, on entering the converted Berkeley warehouse that is home to the Rocket Science design team, is finding Ron Cobb there, playing venerable Obi-Wan Kenobi to the byte-happy Luke Skywalkers that surround him.

Whether you've heard Cobb's name or not, you've definitely seen his creations. For more than two decades — starting with the creatures in the *Star Wars* cantina scene and including work on *Alien*, *The Abyss*, *Total Recall*, *Back to the Future*, and *True Lies* — Cobb has been Hollywood's premier designer of believable futures. Before that he was a scathing underground political cartoonist in both the United States and Australia, his politics permanently skewed to the left by what he experienced as an early Vietnam vet. His life has, he cheerfully admits, been a twisty path.

And now? Now he's in Berkeley with his fellow Rocket Scientists (some of whom were still in diapers when Ron traded his rifle in for a pen), figuring out exciting ways to get contraband mutant camels off the moon.

This dromedary action is part of *LOADSTAR: The Legend of Tully Bodine*, along with a mysterious explosion on Pluto's moon, Charon, and a highspeed race along a maglev railway with the Lunar Police in full pursuit. The game is the first of three planned outings based on a movie script Cobb wrote during the CB-crazed '70s. Back then his idea was that John Wayne would play hard-headed space-trucker Tully Bodine on the big screen. But Wayne died, the



CB boom crested, and Ron's story languished in a desk drawer for years. It might be there still if Ron hadn't been recruited into the gaming world by two other founding members of Rocket Science, Hollywood screenwriter Mike Backes and Silicon Valley technical wizard Peter Barrett. When they asked if Ron knew of any stories that were good, available, and different, he showed them *LOADSTAR* — and an interactive story/game was born.

• • • • •

You're a veteran film designer, experienced at making visuals serve a coherent story, but this is a new and highly problematical medium. How do you feel now that you've jousting with the Interactive Fiction monster?

The first version of *LOADSTAR* got out of hand a bit, in the sense that the Sega platform resolution wasn't real satisfying to set up and sustain a story. How long can you watch people talking on a little crummy screen? It's much more satisfying on a CD-ROM. When we started I knew we were addressing two different audiences — the people who want real action games and get right to them, and the people who like story games. We didn't make *LOADSTAR* precisely one or the other. You know, a movie has a relatively involved plot. It has to be able to sustain for 90 minutes to two hours, which is hard to do in an interactive medium, because there's a tendency for things with an involved plot to become kind of tedious and uninteresting. On the other hand, what's



Rocket Science's

RON COBB

very clear to me is that if you dismantle Aristotelian storytelling — if you look at it very carefully — there are interactive versions of all the standard “rules.” These things really work for game play and always have, you know, building in peculiarities to avoid the pitfalls of repetition, but doing so in a way that still constrains certain sequential events. The very idea of having levels and a goal is Aristotelian and implies a middle and an end.

But some things don't translate well at all.

Humor is extremely difficult to do because you can't tell jokes over and over again. I find that interesting. And you can't *surprise* people over and over again, either. Is it a one-play game or a three-play game or a multiple-play game? Right away you really flatten the whole idea of a plot or a story if it is a multiple-play game. You have to kick it into this really strange realm, this dimension of endless repetition. That's really hard to do, to make that an interesting space.

Another real problem is appealing to seven or eight different audiences that have splintered into different sects of entirely different kinds of interactive activity. Some of those are more conducive to telling stories than others.

LOADSTAR the game is based on LOADSTAR the movie, but there are some pretty big differences. For example, the game only covers the first third of your original screenplay.

We broke the screenplay up into three separate games. The 12-minute filmed opening sequence of the first game is a way of setting up the core story, introducing Tully, and showing the sort of trouble he's always in. The big mystery in the background is that explosion out on Charon. You know he's going to ultimately get out there and find out what that is, so it's a big plot. But that

explosion is the background premise for all three games. We couldn't give away too much about it, because he doesn't get there in the first game. The first game is just about getting Tully off the moon.

Sounds like a tough choice. Aren't you afraid that people are going to be dissatisfied at having this unresolved story element hanging out there?

There is a kind of occupational wounding of human culture, in the West at least, of eroded attention span. People get extremely antsy if they are asked to pay attention [chuckles]. On one hand you don't want to see a lot of this erosion and damage going on for much longer, so you don't want to contribute to it. But at the same time of course you are trying to win someone's

attention. I'm really keen on learning how to manage both. I felt very much that if you were going to do the three games, we had to have a minimal story line that would carry through all three and have some surprises. You get a reference to the explosion on Charon at the beginning of the first game, and it shows up again in the second game, and in the third game it pays off. We'd originally planned more reference to it in the first

game — in fact there was going to be a filmed prolog that actually showed what was happening and set up the mystery, in similar fashion to the way the original screenplay started, but there was no way we could take the time to do that. We had to get Tully out on those tracks and get the game going. Then in the second game he will arrive with the camels at Phobos at the same time another ship arrives with survivors from the explosion, and discover that a fellow space-trucker was on Charon when it happened. In the third game he goes to Charon and finds this friend who is actually there and alive and is the key. At that point there's a big surprise about what's happening, about what Tully is ideally suited to do. He is going to save the whole universe . . . but you wouldn't know it from the first game.

Do you think that will work?

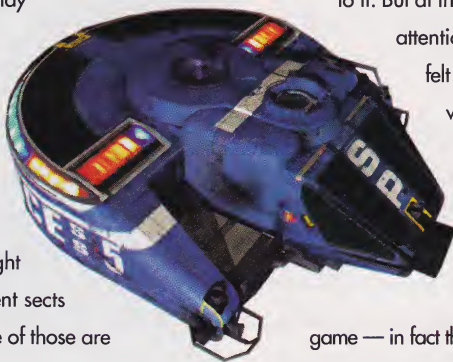
The narrative aspects of the first game could have been a lot more effective if we'd had the time to insert more character references and situations into the game, and more interactive things into the filmed opening. There could have been a better mix going on.

Why craft a mix at all? Why not just shoot for a full interactive experience?

We weren't trying to allow players to manipulate the central plotline. I think there is a real danger there that doing so would just lead them into a great quagmire of boredom. I think that's a dead technology. That will be around for novelty, for a while, but people are going to get tired of watching movies that they write as they watch.

Or stop watching, because everything they manage to make happen is boring. . . .

Right. I really see low entertainment value in having 200 mediocre stories



just so that people have something to navigate through. But there are ways of doing little things where a crisis will occur and you have to bridge the crisis for Tully and keep him alive. You have to make the decision that saves or wounds or kills Tully, that shuts the whole game down or keeps it going. Little micro-bursts of interactivity are needed, and we're in a position to do that technically.

Maybe the gameplay shouldn't be the hero, but the hero's sidekick or control computer.

The reluctant hero is another interesting approach. It's easy to identify with a reluctant hero.

Why?

Because that's someone any of us might be, given the right circumstances. And because it's such a great character type. To me that's the real interactive element in games, and in traditional filmmaking as well — vivid characters.

If that's so, why are game characters so two-dimensional?

They might be caricatures, but doing strong things with them is still within the realm of a good writer's skills. What happens is that computer people who can't write try to get by with gimmicks, but they don't go very far unless they are orchestrated with other things the character does. And traditional writers right away start lockstepping the whole plot in a way that doesn't take advantage of the computer. When they discover that they can't work in their traditional ways, they bail out. They don't want to do it. The net result is there is no one in this field who can really write! When the values of really good writing can be mixed interestingly with true interactivity, without one damaging the other, then you're going to get some great results.

You were the writer on this project.

I was.

How do you feel about your effort?

I'm very satisfied, given that I'm also intimately aware of the reality of what we had to do to get the game out. [Laughs.] That's what you always say when you've worked on a movie.

Hey, we can't afford a retake, and no one's going to notice that boom mike shadow anyway.

It's vital to keep your standards up and keep pushing, though. It's very interesting to see this new medium as a form of storytelling, only of stories that you're involved in. To me the ideal interactive experience is a flight simulator. It's wall-to-wall dynamic interactivity. Yet it can be constrained very much to a mission, or a goal, and you are exercising interactive skills all the way there and back: to stay in the air, not get shot down, and drop those bombs or whatever. One could argue that if the missions are really interesting it's because they've been skillfully presented by a "hidden" writer.

If the writing is that hidden, is it really a story? Or is it just a passing sequence of events?

In video and in film, certain forms of technique and action completely supplant story. I've worked on a number of films that are not to be considered stories, but experiences. You come in off the street and spend some time in an evocative escapist world with lots and lots of action and activity, and then you walk out, and as you walk out, everything you've just experienced — and this is very, very interesting — just evaporates from your mind. The point is that although this kind of movie is very different from a "story" movie, we sometimes confuse the two.



"LOADSTAR got out of hand . . . the Sega platform wasn't real satisfying to set up and sustain a story. How long can you watch people talking on a little crummy screen? It's much more satisfying on CD-ROM."

What do you mean?

In a culture like ours, which has a long tradition of storytelling, there is great value in having issues publicly worked out in interesting ways by the clever people among us. We do seek movies like this out from time to time. But we also feel assaulted by our environment — it's so artificial, so boring, so repetitious. Take "the job," for example, which can never be as exciting as "the hunt." Most of the time we've been on this planet, what we did to stay alive wasn't boring. But now it is, and that's kind of a new thing in the human species. It is now possible to hold someone's attention merely by offering them "escape from boredom." Which is bizarre. This kind of escapism was never necessary at any time in the past. It has *nothing* to do with storytelling. All it is is a kind of withdrawal from life. Most games are like that — just an escape. There's a real danger in them because they're not rich. They just eat up time and give you experiences squarely based on the fact that you couldn't do this *last* year. Eventually that will run out. And the only thing that's going to bring it back into something electrifying, interesting, and truly sustainable as an industry, is the translated capacity for people to get back to telling stories around a campfire. Or having interesting things to say. Or really tweaking your emotions in extraordinary ways. The skills to do that will still come from the weird people among us who notice things and tell stories well.

You feel very strongly about this.

There's a kind of poison that wells up . . . what we've done is we've stroked and stroked and stroked ourselves with advertising and television, to the point where all of us have this weird involuntary thing — if there isn't a peak experience lancing into our brains and lighting it up like fireworks every four minutes, such as someone being shot, or going off a cliff, then this poison starts to be pumped into our system. It wells up into our minds, and our eyes start jittering, and we start sweating a little bit, and we're bored, we're *bored*, and we're really, really frightened.

Boredom is frightening?

It is, because it means we may have to start thinking about ourselves.

And have you ever, in your entire life, been bored?

No. Never.

So this is an outside observation?

[Laughs.] It's an opinion.



INTERACTIVE STORYTELLING

Continued from Page 32

is passable — but the actor strangling a Czechoslovakian accent should have been shot so we would be spared the misery. Ah well. After a few hints are dropped and background details revealed (like mysterious murders and young Morris' engagement to the charming Anisette), tragedy strikes when the evening is broken off by news of her grandfather's heart attack. The last little bit of beginning that remains is a dream sequence in which Morris tries to comfort Anisette at her dead grandfather's bedside, only to have the old codger come back to life and start strangling him while Anisette laughs. Morris wakes up, sweating, and the video ends, dumping us into the game.

It's amazing how much things have evolved in only two years. These days, this "tack an amateur film on at the top" approach just doesn't cut it. And that credit crawl! I could take it in a 70mm Dolby Sound theater, knowing I was in for two hours of total cinematic immersion. But on a computer game it is hysterically pretentious and did not leave me in a mood to sink into the offered story.

Alistair and the Alien Invasion

This is based on the children's book of the same name. Unlike most of the other titles talked about here, Alistair isn't even faintly interested in emulating movies or television. A book it was, and a book it still is — only now it's a book you can interact with. As such it has managed to keep all its original charm and add some extra fun into the margin.

It tells the tale, in simple pictures, narration, and dialog, of one Alistair Griddle, a polite little boy who manages to be likable despite being a super genius, and how he deals with a rather unusual alien invasion and a difficult science class project (in that order).

The tale begins as simply as the moving illustrations that make it up. A very brief title sequence introduces you to Alistair, standing on a hill when the alien fleet flies over. After a quiet "Oh my" at the sight, Alistair himself offers you three choices: have the story read/shown to you, do the same but with places to stop and interactively explore his world, or join him in something called "The Alien Plant Game." Click on "Read and Explore" and you are launched straightaway into the story, watching Alistair walk down his hometown street as the narrator says, "Alistair Griddle was a most unusual boy . . ."

Simple. Direct. Perfect. Any child would love

Hollywood is a place of many shorthand phrases, one of which is the question, "Where's the ticking clock?" In *Blown Away*, the first one is the security lock on our hospital room door. To get out, we must arrange the numbers so they add up to the room number in all directions.



it. This adult loved it, too. It may actually be the best beginning in the lot.

A couple of times in my life I have acted in children's theater groups. I know from experience it is dangerous to be the villain in front of an audience of kids. They don't know reality from acting, they just think you're a bad guy, and they'll kick you if you get within range. Perhaps the new rules of interactive storytelling will best be forged working with an audience that doesn't know how not to be involved.

Blown Away

Did someone say, "emulate a movie?" Here we go, strapped in and ready to ride along with *Blown Away*, a literal sequel to the movie of the same name. The opening sequence is pure cinema, with excellent pacing, editing, acting, and production values. Good full-screen use of the video monitor, too. Its only nod to a computer environment is that it puts us in the POV of James Dove, the Boston-based bomb expert and Irishman with a past who was played in the film by Jeff Bridges, instead of showing us the character from the outside.

After an undefused bomb goes off and takes us out, the credits roll. We wake up in a hospital bed with a pretty nurse telling us that we have a concussion and some memory loss. The television in the room supplies just enough news report backstory to tell players unaware of the movie plot who we now "are." A tape in the VCR supplies the enemy: a psycho Irish bomb-making friend of Garrity, the original film's villain, now out to get even with us for Garrity's death. A little cackle, a little glint, the worst teeth we've seen in ages, and some serious threats. Yep, we're still cracking right along in summer movie mode.

And then it all goes to hell.

What I mean by this is that story gets jettisoned and game takes over without anybody even trying to cover the transition. A call comes in from the friend who saved us at the explosion,

letting you know that "Lizzie has been kidnapped" and that we've got to get out of the hospital. He then proceeds to tell us that what we must do to get out is arrange the numbers on the door's security lock so they add up to the room number in all directions.

And by the way, if we don't get out in time . . . ka-boom!

Give me a break. Hollywood is a place of many shorthand phrases, most of which are used by ignorant producers in lieu of having to face an original thought. One of the classics is the question, "Where's the ticking clock?" — by which they mean "Where's the looming threat that will keep my adrenaline levels so high that I won't notice the bad acting and the holes in the plot?" A bomb on a timer is a literal ticking clock. Another kind is the kidnapped relative who will be killed or harmed if you don't do the villain's bidding within a certain period of time. Here we have both. Ticking, ticking, ticking . . . and boring, boring, boring.

Please. Beginnings are only the setup of a story, but the story itself has to make sense. This doesn't. Why would James Dove be locked into his own hospital room? How could his buddy know the code that can bust him out? Why would there even be such an arbitrary puzzle code in the first place?

Aaaargh. And they were doing so well.

The Madness of Roland, Quantum Gate I: No One Dreams Here, and Quantum Gate II: The Vortex

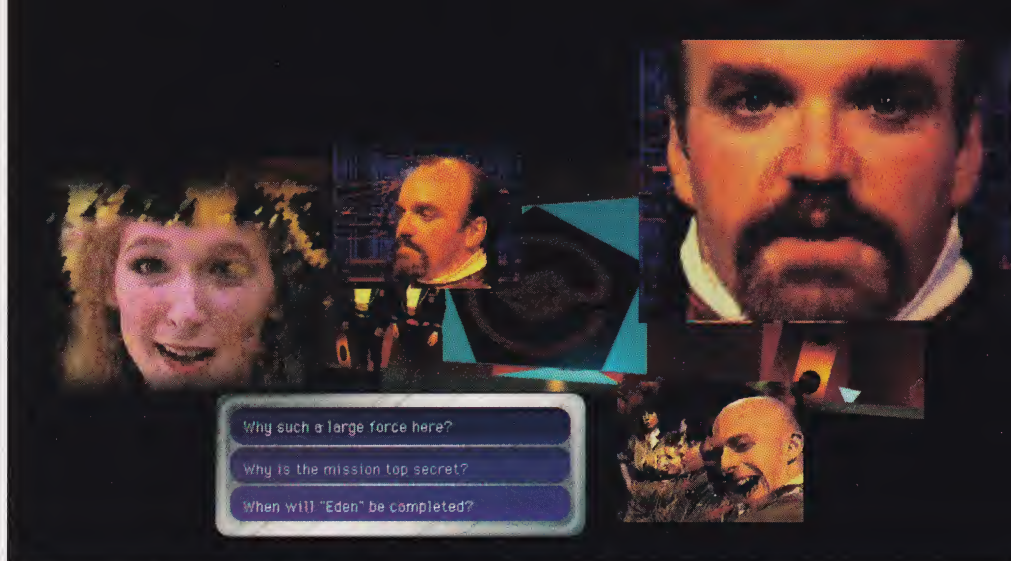
I group these together because they are the catalog-to-date of Greg Roach, one of the true originals of the field. Nobody does interactive like Greg and the team he has assembled under the Hyperbole Studios banner.

These are works of unfettered imagination, with all the good and bad fallout you'd expect. Brilliant ideas sit right next to trash. Excellent performances spar with incredibly amateurish

ones. Ideas that couldn't possibly work are tried anyway, and damn if some of them don't fly after all. All in all, fascinating, and deeply rooted not in film, television, or literature, but in the theater. These stories could just as easily be staged or done as radio shows, as realized in interactive electronic form. And while they would be different in effect, they would not be lessened in impact.

Roland is the earliest work and in some ways still the most interesting. It begins with slow, dramatic music and a few simple screens announcing that the site of our story is Paris in 778, "a city besieged." Only the epic hero Roland can save the day. A simple and straightforward pitch. But Greg chooses to spin his tale in multiple layers. The opening section of the entertainment is your choice of five different dramatic narrations, each with unusual visual and literary pop-up elements that you can choose to experience or not as you go. Charlemagne narrates his version of the tale, the witch-girl Angelica tells hers, the hero Roland his, and even Roland's sword, Durendal, is given a voice. Time and again I wished that the text had been just a little more polished, with fewer jarring anachronisms, but I can't deny that it was involving — and Greg could no doubt cite a good reason for everything that bothered me. The success of this kind of art is highly subjective.

Quantum Gate I leaps from the past to the future. We are cast as Drew Griffin, a medical student turned UN soldier in a secret base on Planet AJ3905. The year is 2057 and human beings have seriously screwed up Earth's environment. In another five years the eco-system will come crashing down unless sufficient quantities of iridium oxide can be brought to Earth from AJ3905, using a new "quantum gate" technology for transportation. The catch is that AJ3905's atmosphere is completely inimical to human life, and its bug-like inhabitants are savage aggressors. All of this is set up in a fairly effective and straightforward fashion. It is exposition, but it's kept interesting in terms of visuals and pace, as we are sent screaming through the gate and re-



***Quantum Gate I* is set up in a fairly effective and straightforward fashion. It is exposition, but it's kept interesting in terms of visuals and pace, as we are sent screaming through the gate and return to consciousness in our room at the military base.**

turn to consciousness in our room at the military base. Normally I would say that this is the end of the story's beginning, but in a Greg Roach production things are not so easily defined as that. The real beginning of this story doesn't come until after the briefing where the iridium oxide plot point is first described, and there's five minutes or so of wandering you can do in the base before that automatically happens. In that time you can really get a taste of Greg's strange sense of humor (ascribing a VR military device to Pacific Images Data, for example, a not-so-veiled reference to CGI firm Pacific Data Images; or Drew Griffin's quarters containing a paperback copy of *The Madness of Roland*); and Drew's memories start to pop up uncontrollably, gradually clueing us into the fact that we have joined this mission with a broken heart from losing the girl we love in an accident.

Quantum Gate II: The Vortex continues the storyline and, if anything, amplifies on its strengths and weaknesses. Some of the opening elements are the same. But others are quite radically different, and if I tell you about them here I'll spoil the effect of the earlier work. Suffice to say that throughout the opening of *QG II*, which

allows multiple entry points to the main story, nothing may be what it seems.

Mind you, though I am interested I'm still not actually moved. There remain too many inconsistencies. The science fiction elements are haphazard and out of control, the characterizations weak and sometimes conflicting, the central premise intrinsically flawed, and much of the acting regrettable. But as a collective body of work these remain some of the most original things the field of interactive fiction has yet seen, and I'll forgive them a lot for that. What Greg does next will be worth paying attention to.

Myst

Do I really need to describe the beginning of *Myst* to anyone? Is there anyone interested in interactive stories who hasn't now heard the old man fall into the fissure of stars, seen the book fall and fall and finally come to rest, then clicked on it only to find themselves transported to an utterly deserted island, full of secrets to be uncovered?

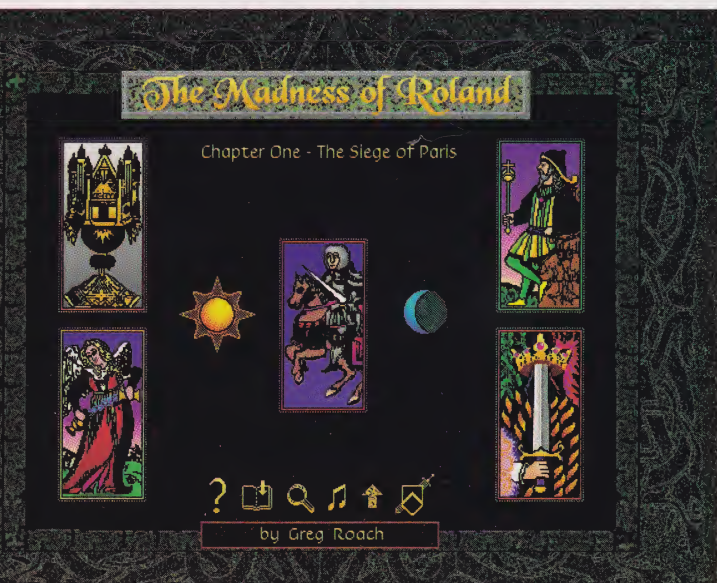
These words, then. If you haven't experienced *Myst*, you are overdue. This is that rarity, a creation that crystallized and defined an entire genre.

A great deal of that success can be credited to the way it begins. It confounds computer game expectations by being quiet instead of loud, slow-paced instead of fast. There is no ticking clock. There is only the mystery. Any good beginning makes you wonder about what's going on and leaves you wanting to find out. *Myst* does that with a vengeance.

Sam & Max Hit the Road

LucasArts meets Saturday morning cartoons, minus any kibitzing from members of the Legion of Decency. The delight in the opening here is the dialog between the two main characters, a blue-suited dog (Sam) and a vaguely rabbitoid creature (Max) as they crash through a wall to rescue an ungrateful lunch date from her techno-crazed would-be boyfriend. In 1995 you've

The opening section of *The Madness of Roland* is your choice of five different dramatic narrations, each with unusual visual and literary pop-up elements that you can choose to experience or not as you go.



INTERACTIVE STORYTELLING

got to love anything with lines like "Does this mean we get to kick some puffy white Mad Scientist butt?" or "That's no head, Max — it's one damned ugly time bomb."

Whether there's a story to follow the intro, or just random wandering through events, I don't yet know. But there's no question that the dialog hooked me. It's the real (albeit comedic) thing.

Dark Forces

LucasArts again, but based on two utterly different traditions. The first is the legacy of the *Star Wars* trilogy. This story/game begins in precisely the same fashion, with some expository material scrolling off into the stars, followed by some zooming spaceships and just enough background facts to set you up as a freelancer working for the Rebel Alliance. Your first mission is a *Doom*-like shoot-'em-up in which you must steal the plans for the Death Star from an Empire laboratory. Succeed at that, and only then do you get the animated "movie" sequence that explains what's really going on. This is the stuff of the old Saturday afternoon movie serials — one of the original sources of inspiration for *Star Wars* itself — and it is used effectively here to make this *Doom* clone more interesting. In a sense, this package is nothing but beginnings, with each completed mission just an entry to a new level of the story.

Beneath a Steel Sky

Another country heard from. The intro to this package is based on the comic book medium. Specifically, on pages drawn by English artist Dave Gibbons. As music plays and a voiceover narrates, we see blown-up panels of comic book art with minimal animation — the play of shadows from a fire across a face, some lips moving, and so on.

It's all pretty lame, actually. When it's over you don't miss it, and the computer game that follows is appalling enough to make you regret ever starting.

It's a pity, because the comic book medium offers much that would be useful to the interactive format. But you'll find none of it here.

The Seventh Guest

As with *Myst*, I probably don't need to tell you anything about *The Seventh Guest*. It is not as purely inventive as some of what has followed, but few efforts have matched its opening for creepy charm. In a riff straight out of an old Disney movie, we see a story told in the illustrations found on the turning pages of a book. The com-

puter brings these pictures briefly to life, but thanks to some terrific art direction it is a "period" kind of life, recalling the Victorian era and the silent films of the beginning of this century. The story is a setup for a ghost story, of course, and it wastes no time in telling its tale of Victorian woe: the drifter who murders an innocent woman for her money becomes a visionary builder of toys; the children who own those toys start to die mysteriously; and the old man builds a curious and disturbing mansion. We pull back from that image to see that the book is sitting on a desk within that dark, moody place, and then we see a parade of ghosts, all past guests in the house, walking in front of a giant stained glass window.

With that, the beginning ends and we are free to explore this haunted maze for ourselves.

Is it effective? Yes. Is it traditional? Yes, and it takes great power from not being futuristic or frenetic or funky, but instead rooting itself firmly in a period where people still believed that evil was strictly a matter of the soul and could be spread as if it were a disease.

There is no interactivity until after the cavalcade of ghosts stops, making this another tightly contained introduction. But if you can sit through it and not want to explore where the beckoning skeletal hand leads, you've got less curiosity than I do.

Legend of Kyrandia 3: Malcom's Revenge

This intro is a combination of gentle fun, technical bravado, and perverse anachronistic humor (a lava lamp in a redecorated fantasy castle?). It is most definitely not to be taken seriously, but either enjoyed or dismissed. It is pure exposition, and whether it works or not probably depends on how interested you are in the mad jester Malcolm, villain of the first Kyrandia game. Here we see him presented in 3D character animation as a baby, trying to decide whether or not to pull a cat's tail; as a young man, tormenting a squirrel; and in a series of "spinning newspaper shots" where his subsequent career as juvenile delinquent, court jester, royal murderer, and ensorcelled living statue is charted out. Then a lightning storm brings him back to life, ready to wreak havoc on those who previously defeated him. Or maybe not. The Kyrandia games are not noted for their linear storytelling or predictable twists.

There's no depth to this, but one or two smiles and one positively disturbing shot involving a knife, a crown, and an expanding pool of blood.

Other than providing a backstory, however, it serves no purpose. And in some ways it's a real distraction, because the story/game that follows is of a considerably lower graphic quality.

Flash Traffic

I saved the most intensely interactive for last. Few efforts have tried to include the participant

as much as this one, and it is worthy of a close look. It begins, like many of the current crop of CD-ROMs, in movie/TV show mode. We're cruising the roads and freeways of Los Angeles at night, with the soundtrack pumping and the handheld camera offering up that perfect visual note of authenticity. It's all palm trees, taillights, skyscrapers, and neon. Abruptly we find ourselves swept up in a DEA bust of a drug lab, which turns into an open firefight. After the gunfire dies down, we cut to the outside of the LA Federal Building . . .

. . . and things stop being like other interactive stories. From here on out we are kept tightly in the POV of a senior FBI agent who has been rousted out of bed by his assistant. The guy is waiting for us in the lobby with coffee and some really bad news: the DEA didn't find drugs in that raid. They found everything needed to make a small nuclear bomb and evidence to indicate the job was already done.

Somebody out there is getting ready to nuke Los Angeles, and only we can stop them.

This story is broken down into lots of small, branching decision trees, at each of which we get to select one of three verbal responses to what is going on. And when I say lots, I mean lots. The story moves quickly, and we are actually driving it. A lot of thought went into this script.

The resulting effect is curious. We become more involved than usual with the story, because we are actually pushing it along. At the same time, we are distanced from it by the fact that we are constantly stopping and choosing which of three different things to say, and wondering what impact, pro or con, subtle or major, will follow on our choice. It actually works quite well, however, in making you believe in yourself as the character. Anybody in this position in real life would be icily calm over a veneer of panic too.

• • • •

That's it for our survey of beginnings. Next issue we'll dig into the middle of these stories, continuing our exploration, and check out answers to two important questions: (1) Are the current generation of authoring tools the binding limitation on interactive fiction, and (2) Just what would Aristotle think about all this, anyway? See you then.



ABOUT THE AUTHOR

Connor Freff Cochran is a writer, artist, actor, composer, and occasional software consultant whose diverse background includes going to Clown College, being an on-air science correspondent for the BBC, and writing the "Creative Options" essay series for *Keyboard* magazine. He is currently living in Los Angeles, recording new music and writing screenplays.

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how to PUT TOGETHER an INTERNET WEB SITE

**JUST
ENOUGH
UNIX TO
GET YOU
CONNECTED
TO A SERVER**

W

hile anyone can (and, seemingly, will) pick up a book on HTML and create a good looking homepage, one of the few things holding back the tide of truly mediocre Web material is that relatively few people know what to do next — how to take an HTML file and make it available on the Web. A part of me says that's a good thing — I don't think I'm the only person worried about the Web collapsing under its own accumulated weight of hype, bandwidth waste, and crappy material. Nevertheless, it's amazing how quickly the world has moved from asking "What's HTML?" to "I've put together a site on my desktop; how do I get it up and running on the Web?" ■ There are two basic answers to that question. One is "Install server software on your desktop computer, hook it up to the Internet by hook or by crook, and be your own master." That's fine, but it's not the right answer for most people, since most individuals will be deterred by the cost of a dedicated phone line, and most MIS directors would rather pass bricks than allow

B Y L A R R Y O ' B R I E N

how to PUT TOGETHER an INTERNET WEB SITE

uncontrolled access to computers on the corporate LAN.

The best idea for most people is to put their HTML documents on a dedicated Web server that is set up and maintained by someone else. Today, most machines set up as Web servers are Unix workstations. That has an advantage and a disadvantage. The advantage is that all

Unixes have powerful file handling and transferring capabilities. The disadvantage is that no one knows how to use those capabilities. Well, not "no one," but for those raised on Macintosh or Windows machines, Unix can be an intimidating experience.

Fig. 1 represents the basic structure of most Web sites. An internal network connects cheap desktop machines on which content is created. These machines are primarily PCs and Macintoshes, and they have several desktop resources, such as scanners, mass-storage facilities, image capture and manipulation, etc. As part of the network, but generally residing in some dark, mysterious section of the building, guarded by crazed Rottweilers, are one or more Unix servers. These servers act as bridges between the internal network and the Internet.

Many good resources now are available on how to turn an idea into an HTML-encoded document, and I've tried, in "How to Put Together an Internet Web Site: An HTML Primer" (*InterActivity*, May/June 1995), to give an idea of

how the server handles requests in the form of URLs and responds by sending MIME data back down the wire to the user somewhere out there on the Internet. How, exactly, you get the data from the desktop authoring environment to the server, however, is a common sticking point.

There are basically four steps to transferring files to a server: preparation and HTML validation, the use of an FTP (file transfer protocol) program to move the files, the use of a terminal emulator and Unix commands to fine-tune names and locations, and a second round of HTML validation on the server.

The most common mistake in authoring is probably the use of absolute URLs when relative URLs are the appropriate choice. While a hyperlink to an URL such as `http://DI/DF//WEB/MY_SITE/MY_PAGE.HTML` may work on the authoring system, the final product will reside on an entirely different file and directory system, and a relative URL, using the form `http://MY_PAGE.HTML`, must be used. For some reason, authoring tools generally seem

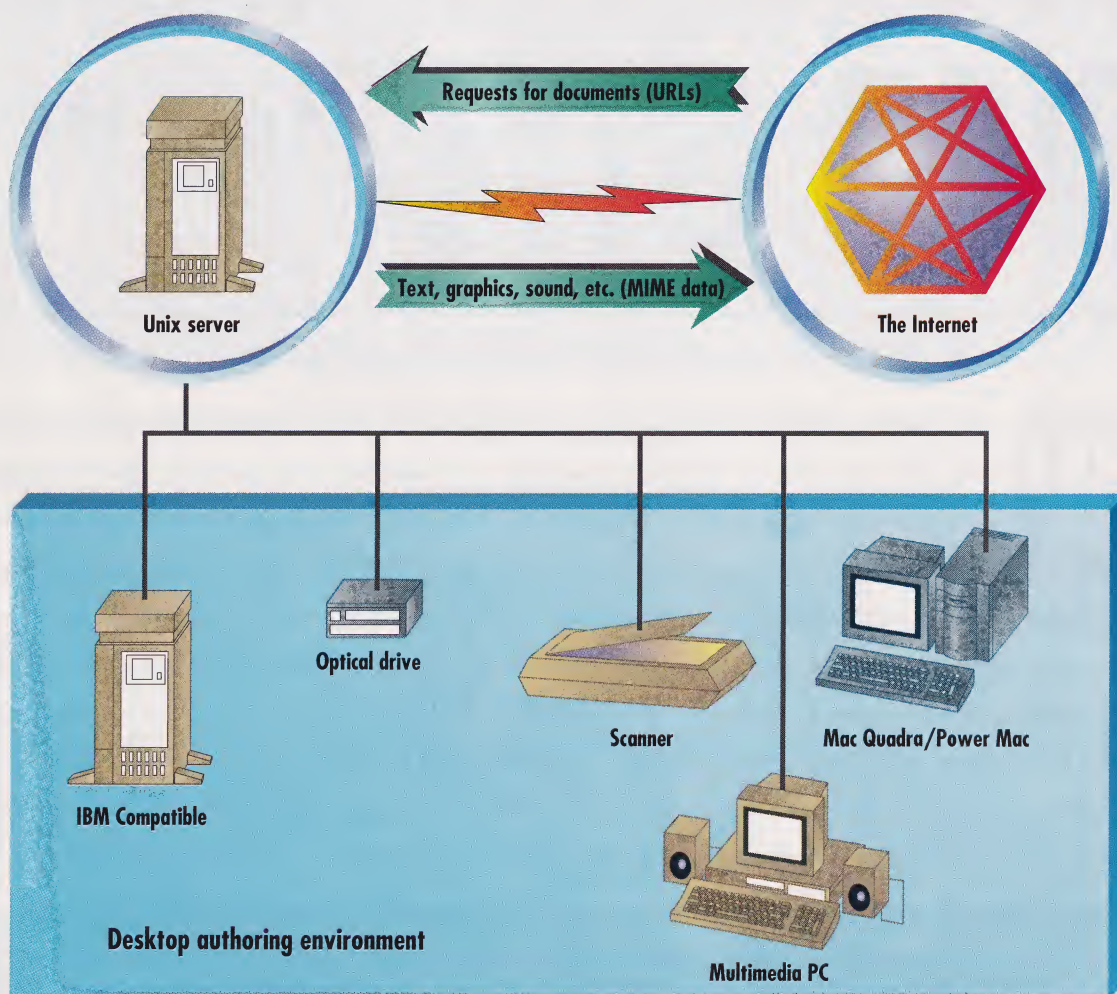


Figure 1: The basic structure for most Web sites. An internal network connects desktop machines on which content is created. Unix servers are part of the network and act as bridges between the internal network and the Internet.

very good about inserting relative URLs for text and very bad when it comes to images. The current generation of Web authoring tools are pretty poor at validation in this manner, and you'll have to look at the generated HTML code, scanning for the long directory qualifiers that are the telltale signs of an absolute URL.

Another thing to scan for at this point is the use of mixed case in your URLs. Filenames in Unix are case sensitive, and if you try to access a file with the URL of `http://MyPage.html` but you've uploaded the file as `myPage.html`, the server will tell you it can't find the file. Although an authoring tool can relieve you of the burden of writing in HTML, Web authoring invariably demands that you review the document, in all its HTML glory, before putting it on the server.

You'll connect to the Unix server with two programs: an FTP program and a terminal emulator program. While traditional FTP programs are minimal, modern, graphical FTP programs, such as John Junod's `WS_FTP` for

Windows, Neologic's `NetSuite FTP` for OS/2, and `Fetch` for Macintosh, make Unix file systems appear as folders on your desktop. You may be able to do almost all necessary file manipulation (changing directories, renaming files, etc.) with one of these excellent programs. You'll be less likely to enjoy the terminal emulator program, which will do very little except give you access to the Unix command line (unless you install X Windows client software on your desktop machine — an investment that's worthwhile only if you plan on doing a good deal of work on the server).

Before you log on to the Unix server, you'll need to have an account set up for you by the Unix system administrator (typically, an extremely pale, long-haired fellow who did extensive graduate work in theoretical conchology). This may be a little confusing because you probably *can* hook up by what's known as anonymous FTP. Anonymous FTP is nothing tricky; it's just a guest account with minimal

access privileges with the user name set by tradition to "anonymous" and no password (although it's expected to send your email address as your password so the sysadmin will be able to track who's poking around the hard drive). Here's the important part: When you ask the sysadmin to set up an account for you, tell them that you'll require read and write permission in the Web server's document and `cgi-bin` subdirectories. A cautious sysadmin may balk at that and tell you that they'll create a subdirectory structure for you and give you permission to manipulate files only within that subdirectory. That's fine (as a matter of fact, it's commendable, since strict adherence to such a policy means that users won't accidentally clobber each other's work).

The very, very, very first thing you should do when the sysadmin gives you an account and a default password is change the password. Start your terminal emulator program and specify the server name. You can figure

TOP 10 UNIX COMMANDS YOU CAN'T LIVE WITHOUT

Command	English translation	Reason to use
<code>pwd</code>	password	Most cracking comes from brute force assaults on exactly the type of default password your sysadmin might assign you — your name backwards, the date your account is activated, "temp," etc.
<code>cd target_directory</code>	change directory	All the action is happening over in <code>/htdocs</code> .
<code>md new_directory</code>	make directory	Clogging a single subdirectory with all your files is a sure way to earn the wrath of the sysadmin.
<code>rm file_name</code>	remove file	Destroy any incriminating evidence.
<code>mv old_name new_name</code>	move (also rename) file	UNIX filenames are case sensitive. Unix filenames are case sensitive. Unix filenames are case sensitive.
<code>grep pattern file_name</code>	find pattern	Finds regular expressions in files.
<code>man command</code>	manual pages	Unix systems have very extensive documentation available online.
<code>man -k command</code> <code>apropos command</code>	find a command in the online manual	Knowing which command to use is often the hardest thing.
Pressing the control key and S simultaneously	Stop the current process!	When you accidentally start deleting an entire file system, this command will come in handy.

how to PUT TOGETHER an INTERNET WEB SITE

that out from your Web site's homepage URL. For instance, mfi.com is the name of the server in the URL `http://www.mfi.com/InterActivity/HomePage.html`. When you specify the server name in your terminal emulator program, you'll connect to the server, either by your company's internal network (which will be nice and speedy because you've got a wire — probably Ethernet — running more or less directly from your machine to the server), or by the dial-up protocols of SLIP or PPP (which will be horrendous and doggy but which are sometimes all you have available). Logging on should be fairly straightforward, and you'll have to type in the username and password supplied to you by the sysadmin (which might or might not be the same as the username you use to log on to your company's network). If you log on successfully, you'll end up with a prompt that'll probably be either a \$ or a %. Type `passwd` and follow the instruction to change your password to something other than what the sysadmin assigned to you.

As part of setting up an account for you, the sysadmin created a subdirectory for you and, when you log on to the machine, you'll be placed in that subdirectory. Want to see what's in there? Type `ls` to list the files. For more detail, use `ls -l` and to see if there are any hidden files, use `ls -a`. If you want to remove a file, the command `rm filename` will do it for you. (A word of warning: some hidden files such as `.profile` may be in your subdirectory. Don't delete these. The sysadmin has created them for you to make your life easier.)

To change directories, use the command `cd target_directory`. If the sysadmin has created a special directory for your pages, go there now. Otherwise, go to the general Web documents subdirectory, which will be called `/htdocs` or `somesuch`. DOS users may get thrown by Unix's use of forward slashes (/) to indicate directory structures, instead of DOS's backward slashes (\).

If the sysadmin hasn't made you a subdirectory, this is your next task. Once you've switched to the site's basic directory by executing `cd /htdocs`, typing `md ./my_site` will create a new subdirectory below this one (the `.` preceding the forward slash is shorthand for "the current directory"). Now, leaving your terminal program open, start up your FTP program. One of the few nice things about dialing in to a Unix server is that you can have multiple simultaneous logins, and you don't have to close your terminal emulator to upload files.

Your FTP program will have some obvious way to specify a hostname and an account. Some of them default to using "anonymous" as the username, but you should log on with the username assigned to you by the sysadmin

“Installing files on Unix servers is simple if you don't try to force yourself to learn Unix.”

and the password you oh-so-recently specified. Again, when you log on, you'll be placed in your user subdirectory, and you'll use the FTP program's "change directory" command to switch to the `/htdocs/my_site` subdirectory.

In some fairly conspicuous spot, your FTP program will have a toggle between ASCII and Binary transfer modes. You should choose ASCII to transfer your HTML files and Binary when sending GIF, JPEG, or sound files. You may also have the option of uploading a single file at once or sending up a batch. Generally, you can send them in a batch if you've been very good in your desktop-validating task of making sure that the URLs are appropriate for Unix-based systems (which is to say, making sure that you've been careful about mixed-case

filenames). If you made a mistake and need to change a filename, you may be able to use your FTP software, or in the terminal emulator you can use the command `mv old_name new_name`.

If you're working on an internal LAN, FTPing the files will happen very fast. If you're working through a dial-up connection, it will be slow going (but not excruciating, since having read "How to Put Together an Internet Web Site: The Bandwidth Bottleneck: What Is It & How to Streamline Images" [*InterActivity*, September/October 1995], your files are lean and mean MIME machines).

After uploading your documents, you'll want to upload your scripts and programs. If you're using Perl, switch your FTP software to the `/cgi-bin` subdirectory and upload your scripts there. If you're using C or C++, switch back to your `/usr` directory, upload your source code, compile and link it, and use the `mv` command to move the resulting binary to the `/cgi-bin` subdirectory.

To enable your scripts, you have to set a permission bit. Use your terminal emulator to issue the Unix command `chmod +x script_name`.

Fire up your Web browser and admire your work!

Okay, that doesn't always work. What if you make a mistake and your pages are coming up with missing graphics or the server reports that it can't find your file? First, figure out what's wrong. Ninety-nine percent of the time it will be an obvious mistake where an URL isn't relative or uses the wrong mixed-case filename. When you've figured out in which file the problem lies, download the file via FTP, fix it on your desktop machine, and re-upload it. Although Unix has powerful text editing tools in `vi` and `emacs`, they have long learning curves and aren't worth the effort for an occasional user to learn.

Installing files on Unix servers is simple if you don't try to force yourself to learn Unix. Lots of checking on the desktop, a few simple commands, and a graphical FTP program are all you need. Now, if you want to program X Windows, that's another story. . . .

ABOUT THE AUTHOR

Larry O'Brien is editor-in-chief of *InterActivity* sister publications *Software Development* and *Game Developer*. He first logged on to a Unix machine in 1979, and it pretty much screwed him up forever. Send condolences to interactivity@mfi.com.



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STOCK FOO

HOW TO BEG, BORROW, AND RENT YOUR WAY TO INTERACTIVE BLISS

Clip media. Stock footage. Image and sound libraries. 3D model, motion, and texture sets.

Whatever flavor you choose, whatever moniker you put on it, third-party content for rent, license, lease, or free can help you cut production times, reduce costs, or simply supply ingredients that would otherwise be impossible to generate on your own. ☉ Planning one of those quick and dirty CD-ROM projects, say an interactive overview on the history of life, the universe, and everything? Who ya gonna call for those pictures of the Wright Brothers at Kitty Hawk, recordings of pre-Civil War blues, images of the Mona Lisa or Guernica, sound recordings of zippers and light sabers? ☉ You name it, some-

BY LEA ANNE BANTSARI

one's got it and is willing to let you use it. ☉ But how do you find it? What's it going to cost? What legalities lurk in the shadows? This is the first installment of an ongoing series in which we'll try to answer those questions and more. In coming months we'll focus on all manner of third-party content from photo archives to music and sound effects libraries to clip graphics. This time, the camera's rolling as we examine stock and archival film and video footage. *(continued)*

TAGE



WHAT'S OUT THERE, FOR WHOM

Available stock and archival footage spans an incredible range of subjects. City skylines. Countrysides. Oceans. Storms. Events. Military. Politicians. Celebrities. Sports. Wildlife. Transportation. Lifestyle. Time lapse. . . .

An amazing number of companies specialize in maintaining film and video archives. They're known as stock footage houses. Some specialize in one area or another, while others offer a smorgasbord of material collected in a variety of ways from inhouse shoots to distribution arrangements and buy-outs of material from other houses. Materials are generally delivered on tape, though a relatively new breed of stock business is being delivered on CD-ROM in the form of collections that you often only pay a one-time fee for. Such pre-digitized collections are perfect for prototyping and business presentation, interactive media kit kinds of apps. No matter your needs, where you look will likely depend on what you're looking for, but don't stop at the obvious sources.

In the U.S., the big three network broadcast news organizations, CBS, NBC, and ABC, license their footage. CBS offers archives from 1954 to the present along with earlier material

acquired from other sources, such as Universal Newsreels and All-American Newsreels. Field outtakes — footage shot for a story but not broadcast — are also available, depending on the shot and your intended use. NBC's collection starts in the 1950s and continues to the present. ABC News VideoSource is the sales unit charged with making ABC news footage after 1963 available, including outtakes. They also rep footage from Worldwide Television News, British Movietone Newsreels, and Universal Newsreels.

Other companies, such as Energy Productions, maintain strictly contemporary libraries, while firms such as Archive Films amass a comprehensive collection of historic footage. Still others, including Image Bank Films, Hot Shots/Cool Cuts, Video Tape Library, and Media-Pedia Video Clips, maintain comprehensive one-stop shopping collections.

"My main strategy is not getting into one niche per se — not just doing archival or comedy or locations," explains Video Tape Library company president Melody St. John. "We have a very well-rounded library, so people don't have to go to one place to get a time-lapse shot

and another to get a sports shot and another to get a travel shot."

Stock footage houses have been around for a long time. Long before the advent of interactive media. They're accustomed to lending material to producers with budgets of all sizes from small and skimpy to mega-Hollywood. Stock footage played an essential role in *Forrest Gump*. Oliver Stone used it in *Natural Born Killers* and *JFK*. It's shown up in *Quiz Show*, *Dracula*, *Rising Sun*, countless World War II flicks, and more. Television shows from *Northern Exposure* to *The X-Files* to *Murphy Brown* incorporate it. Commercials for airlines, beverages, and cosmetics routinely take the stock route. It's also a natural for industrials, corporate training films, presentations, music videos, and even home videos, or so we're told.

The new kid on the block is interactive multimedia. "Ten years ago, stock footage was dark, dusty archive footage. Now a larger percentage of the stuff you see on TV incorporates stock footage, and the average person doesn't know it," says Todd Pavlin, a principal in Secondline Search, an affiliate of Action Sports Adventure and Hot Shots/Cool Cuts offering research, licensing, and clearance services. "Multimedia didn't exist 10 years ago. It's a huge outlet, it may be larger than any current distribution mechanism right now. It's conceivable that multimedia will be more important to my business five years from now than advertising or television."

Interactive media producers currently make up 10% of Pavlin's business (advertising agencies, television, and corporate producers fill up the other 90%), up from 1% a year ago. And while a lot of developers have professional film and video backgrounds, others don't — we are, after all, talking multiple media. The result is that both developers and stock footage houses are experiencing the culture shock of having to adjust to each other's business practices.

For developers, the need is to learn how clips are priced, how they can be applied, what rights need to be cleared (see the related sidebars). For the stock houses, business models that have worked for years with straight film and video productions need to be modified.

"We've had to adjust our models," says Pavlin. "These people are ordering two hours of footage, but they're not going to pay \$3,000 per minute. And how much work does it take for us to transfer two hours of material, research it correctly, make sure the quality is right, and do the rights and clearance work for them? It's an enormous amount of time and effort for us."

When it comes to the amount of footage required, interactive developers generally want

Some stock footage houses specialize in niches such as extreme sports. Others focus on news or strictly archival or strictly contemporary collections.



Aerial Focus

more, more, more. In a traditional hour-long television documentary, for example, the typical length of a clip is only seconds long. On a CD-ROM, it's more often a matter of minutes.

"Where we're selling one shot for a lot of money to an advertising agency," explains Pavlin, to multimedia people, "we're selling lots and lots of different images for very small

amounts of money on a per-second basis."

Another factor influencing the new business model is the relatively small number of multimedia products being produced and sold. "Right now, if you sell 20,000 to 30,000 CDs, you've got an absolute Number One hit," explains Rex Jobe of Image Bank. "But if you don't sell 200,000 to 300,000 video tapes or a movie or something like

that, you're not going to do very well. The quantities being published and distributed in the marketplace at this point really put a lot of price pressure on every image provider, be it a stock provider or someone doing original work specifically for them. The multimedia market is still growing very rapidly, and I think it's going to take some time to see where it goes."

HOW TO FIND IT, WHAT YOU'LL PAY, WHAT YOU'LL GET

The traditional search for footage usually starts with a call to a footage house — some companies offer research centers for local clients where you can do a search yourself — to tell them what you're looking for. The more information you can provide about what you're looking for, what you'll be using it for, how many copies you expect to sell, and so on, the better. Sending a script or storyboard also helps a lot.

But be open to suggestions as well. Researchers at footage houses can help narrow your options. They might even find the perfect shot for your project that you haven't asked for because you don't know it exists.

"If we don't have it, we usually know where to get it or we'll tell them it doesn't exist. And there are things out there that people think exist that don't," says Melody St. John of Video Tape Library. She cites dinosaurs and the Wright Brothers' first flight as frequent requests — the second flight was captured on film.

If, after your first call, it sounds like a footage house generally has what you want, you can have them search for possible clips. Research fees vary — check first to determine the particular library's policy.

At one time, index card files were the key to finding footage. These days, most houses have computerized databases containing shot-by-shot descriptions of the footage. Keyword searches can be performed to locate possibilities for your project. We've seen searchable laser disc-based portfolios, such as Image Bank Film's Image Index, that display a sampling of each shot for quick previewing. You may or may not get direct access to these portfolios. With the Image Index, visitors to Image Bank Film's many offices around the world can search and view still images of the company's footage. Sometimes these systems are reserved for inhouse use, though large clients may get the laser discs and search software gratis.

If someone else does the search for you, the researchers will contact you with a list of possible matches with your requirements. If you decide you'd like to see any of the clips, they'll make a usually time-coded, nonbroadcast quality sample tape and send it to you. You'd then view the tape, perhaps mock up a few clips, and make up a list of shots you definitely want, identified by time code.

You'll probably save money if you use footage from a house that has already transferred its film to video for screening purposes. That way, you're only paying for clips to be copied from one tape to another, rather than from film to tape.

Once you've made your selections, footage houses make a production-quality tape from

their masters and send it to you, usually overnight. Unless you're buying clips already on CD-ROM, you'll of course need to digitize and compress the images yourself.

Most CD-ROM-based collections include detailed indexes. Some, such as the video clip collections offered by Four Palms, include a search engine. "We found it pretty boring to go through 80 to 100 video clips looking for one you might want to use, so we wrote a navigation system around it," explains Four Palms president Pat Buteux. "You can search on thumbnails, categories, or keywords, and there's a quick summary of what every clip looks like. The idea is that people can take these and put them in presentations."

While CD-ROM collections provide pre-dig-

Many producers captured bizarre events on film that's now available as stock footage.



Video Tape Library

itized clips, most libraries provide footage on tape. Most developers request tapes in one of three formats — Hi-8, S-VHS, and Betacam SP, the latter being the most popular because its cleaner picture quality yields higher quality post-compression results. "Footage shot on Hi-8 will not compress as well as the same footage shot on Betacam SP," notes William Roberts of Media-Pedia Video Clips.

"Highend producers are getting stock on Betacam, then doing their own captures," says Michael Heumann, president of Global Village Stock Footage. "We're strictly on Betacam SP right now. We can copy it to other formats, but it loses something. Generally, I encourage developers to take it on SP because they can always go back to the highest quality."

Although some houses can provide digitized footage, they've found that most developers prefer to maintain control over that aspect of the project's quality. Doing it yourself allows you to make sure the various pieces of stock footage blend well, and to use whatever codec you expect your target platform to be capable of. It also allows you to change your mind whenever you'd like should you, say, want to do a Quick-Time version, an AVI version, an MPEG version, or all three.

What about viewing compressed files in the initial screening process? "We discourage people from digitizing in the screening process because it's just too expensive or they get such low-resolution images that it isn't helpful to them in terms of how they're going to cut with other images," explains Pavlin. "In the final elements, we don't care. We'll deliver any way people want — any format, digital, tape, film. It's really transparent to us."

There's an alternative to paying by the clip at rates that vary depending on how much you use and how many you sell — an arrangement known as a "buy-out." This means you buy a clip or collection of clips at a flat rate and use as much or as little as you need, in as many projects as you want. Most buy-out collections are available on CD-ROM and in a variety of tape formats. Media-Pedia Video Clips' William Roberts finds casual users buy his collection on CD-ROM and producers generally prefer the collection on tape. "Producers very rarely buy the CD-ROMs," he says. "I call the CD-ROMs cast in plastic. Once you've made it, you can't change it. That CD-ROM is frozen in time at the quality level of software and hardware technology available at the time you pressed it. That hardware and software is getting better every six to nine months."

"The format wars are really causing people grief," Michael Heumann of Global Village adds. "Once you commit to a certain thing and later someone wants to put it in a higher-resolution medium, you have a hard time."

Clips on CD-ROM, however, do have advantages. "First, they're already compressed," says

Pat Buteux of Four Palms. "They're ready to use on the computer. That's a big thing. Second, you don't have to worry about the royalty or who owns it or paying for it the next time around. Finally, there's the price. [Our collection is] only a dollar a clip. You really only need to use one or two clips out of the whole collection to justify paying for it."

Talking Dollars & Seconds

Packaged royalty-free buy-out collections come at a set price that's often based on the format you choose, whereas selecting clips by going through a stock house's research department generally involves a per-second rate schedule based on usage: the more exposure a clip gets, the more you'll pay, which means feature films and ads that run nationally get charged the highest rates. Television programming and regional or local advertising come next on the pricing foodchain. Corporate and educational usage cost less, as do interactive media projects. What you pay also depends on research and mastering fees and, of course, the license you negotiate (more on that in a minute).

While it's easy to measure how much visibility a clip will get in traditional media such as film or TV, it's more difficult in non-linear media such as CD-ROM in which a clip can be viewed over and over again. So rates are based on the length of the clip as seen linearly. Still, the high-volume footage needs of interactive development and market size have forced many footage houses to alter their rate structures. Price breaks for quantity are not uncommon.

"When multimedia came along, we developed a special rate card to accommodate the larger capacity for footage," says Patrick Montgomery, president of Archive Films. "The rate schedule starts at \$20 per second and goes down from there. The more you use, the cheaper it gets."

"Why is CD-ROM \$17 per second and feature films \$41?" asks David Seevers of ABC. "You do the math. A feature film is going to gross millions and millions of dollars, potentially, and a CD-ROM . . . What's the market doing right now? It's not cranking out that kind of revenue. We understand that. When that changes — we certainly expect it will — when CD-ROMs become more in demand and are making more money, we'll adjust our prices."

Typical rates for interactive media applications range from \$3 to \$50 per second, usually with a 10- or 30-second minimum. Research fees differ from company to company. Some don't charge for research, others charge \$30 or more per hour, and some charge a flat rate (\$75-\$125) for a viewing cassette. Duplication fees vary depending on the format you choose.

It's also important to know that while some footage houses own the material they license, many libraries represent particular collections and have contractual obligations to the owners

of those collections. Sometimes, the fees they charge you also cover these obligations, which may limit their ability to negotiate price.

After the basic fee structure, it's negotiation time. A typical license gives you non-exclusive rights to use a clip on a per-project basis for the length of the license — usually five to 10 years. The more you know and negotiate at the beginning of the project, the better: What is the ultimate goal of this product? How is it going to be distributed? For how long? In how many languages will it be produced? On which platforms will the product run? How many revisions do you plan on doing in the next five years? Do you want to have an online link? Do you see this product migrating to online distribution? Are you going to use the clip in several related products, such as a broadcast documentary, a home video, and a CD-ROM? If so, you'll get a better rate if you negotiate all of it up front than if you handle each as a separate deal.

Some footage houses take a straightforward approach to licenses. Others use a higher dose of negotiation. Some vary the fee depending on how many units you manufacture. Some don't. We talked to several footage houses regarding licensing issues. Here's a sampling of their negotiation philosophies:

David Seevers, ABC News VideoSource: "You take a clip of video and you license it for one specific use, one specific product use, and that's it. And you can use it in that product for the duration of the license. We don't get into press runs or numbers sold or anything like that."

Patrick Montgomery, Archive Films: "Unless it's a product with a high-volume potential, we generally make it a five-year license. The basic license is usually five years, worldwide, one language. With the idea that it's probably going to sell 10,000 to 30,000 copies. If it's Microsoft *Encarta* or something we know is going to sell a lot more, we might tend to peg it to a print run, where the initial license would be for up to 50,000 units. They would have to renew after that and pay an additional fee. That's not the deal we made with Microsoft, but that's the kind of thing we do. If they want to add on different languages, then we would charge additional for that. It's a base rate and as they want to expand the license, we would add on additional charges. The thing we won't do is make an open-ended license. It has to be pegged to a print run or time period or something like that."

Michael Heumann, Global Village Stock Footage: "We give non-exclusive rights in perpetuity. We license it for a specific product, in perpetuity, in all markets."

Rex Jobe, Image Bank Film: "We'll license them for the project that they're on, to use specifically for the project they're asking for. We don't do any kind of open-ended things."

Todd Pavlin, Secondline Search: "If you're only buying one minute of footage, I'm not going to be very flexible with you. If you're order-

ing 40 minutes of footage, plus stills, plus sound, and you're having me do the rights and clearance work, then it becomes a whole other issue.

"We're trying not to clobber people over the head. We're trying not to discourage them from using companies such as ours. At this point it's functioning as a loss leader, maybe slightly better. And that doesn't mean we're not doing hundreds and hundreds of thousands in multimedia business this year. It's an important component of our business. I always believe there's a negotiation element because people's situations are different, and in terms of rights they want, we try to be as flexible as possible.

"If you have the money, it's obviously in your interest to clear as many rights as possible up front. If you come to me and say, 'I want multiplatforms. I want in-perpetuity. I want multilanguage. I want online migration. What's the price?' I'm going to be able to make you a much better deal if I know that all up front.

"I also believe that if you have a project with financial and artistic merit, that you might approach companies like mine — and we've certainly done this — and say, 'I don't have a lot of money to pay you up front. I think this is an interesting product. Why don't you take some backend money?' We believe in that. Both artistically and financially if you have a project that we think is worthwhile, that we think just might be interesting to be associated with — and we like to have fun and work on interesting projects — then we will reduce significantly or even at times completely waive our fees if we can get some backend participation. A lot of companies are scared of that because they don't have the bookkeeping in place to track royalties or they just don't want to track more royalties than they already have to.

"Our feeling is that we're very flexible in that regard. A typical deal is that we let people tell us what their break-even costs are, and we feel they've done 90% of the work so they should break even and they should make a legitimate



Action Sports Adventure

Professional sports, the Olympics, and world champions highlight some stock footage collections.

profit. But if the product really takes off, after they've made some sort of legitimate profit, then we should share in the backend."

Finally, ABC's David Seevers offers some advice on negotiating: "Be aware that you're the customer and you're coming to a place that has to win your business. You should demand a service from the places you're going to, but you should also understand that if you've been quoted prices, you have to work within those boundaries. Don't get pushed around. Be aware that if you do give one particular provider a lot of your business, they'll appreciate that. You have some leverage. But you don't if you're trying to play all sides against the middle. It's better to be straightforward and say 'this is what I'm doing, this is what I want to pay, can we work this out?'"

Buy-out collections are usually more straightforward. Most are royalty free and you can use them in multiple productions. Within one or two

clips, users of buy-out collections have paid for their investment. After that, they could conceivably make money. A producer could use a clip from the collection and charge their client a fee for footage that's much less than the going rate for stock footage. The fee would be a bargain for the client, and the producer would realize some financial gain.

But be sure to read the fine print. According to most licenses, you can't buy one of these collections and sell any of the clips as part of your own stock library. Nor can you desynchronize the audio from the collection and use it separately. However, you can delete the audio and/or add your own audio.

Now it's time to edit. You've found the perfect clips for your project and negotiated a license to use them. That's it, right? Wrong. You need to consider rights and clearances of the material in the footage. Read on.

RIGHTS AND CLEARANCES

Most footage libraries have the right to license clips to you, but depending on your project, you may need rights in addition to the copyright of the footage. And it's usually the responsibility of the client to clear those rights. You may need clearance from the people appearing in your footage that it's okay for you to use their image. Some buy-out collections have purposely eliminated material that could be litigation prone, such as images of Marilyn Monroe or Elvis Presley, but it's still up to you to get any additional clearances you may need.

Footage that's shot specifically for stock use likely has talent releases, but that's not necessarily the case with archival footage. If you're putting out an educational product, you may have fewer worries than if you're developing a game. People have rights to privacy as well as publicity. Public domain isn't as simple as it sounds. Here, industry insiders discuss what to watch for when using footage.

On Getting Rights

Todd Pavlin, *Secondline Search*: "There's

a large amount of education that has to go on on both sides of the fence. We've made it too difficult for people to access content except for the very standard . . . if you want World War II public domain footage, that's very easy. On the other hand, multimedia developers have to understand that if you want 45 minutes of film footage and you want everything from *Gone With The Wind* to Mickey Mantle, there are people who own those things and they're not that simple to access.

"If you want a sunset, that's one thing. But

if you're getting sports images of famous Olympic athletes, that stuff is controlled by the Olympic Committee. I might have a copy of it in my office because we've done a lot of work with the Olympic Committee before and a lot of work with ABC, but I don't control all the rights to that. I might control the rights from the filmmaker, but I don't control the rights from the International Olympic Committee. And the International Olympic Committee might not be able to sell it without also getting permission from ABC, depending on their contract."

Patrick Montgomery, Archive Films: "The bottom line is not is this legal or illegal. It's not black and white. You'll won't find laws that say, 'For this kind of use you need to do this.' A prudent developer would look at something and say, 'If I do this will someone sue me?'"

"Contrary to the way many people feel, not everybody is standing by with their lawyer waiting to sue somebody. If you were to put a famous person's picture on a CD-ROM, the questions are: Would they find out? Is my use something that would make them mad or make them feel as though they needed to be paid? Even then, would they be willing to spend a lot of money to take me to court?"

"You answer those questions, you work your way down, and in the end, you end up with a relatively small number of people (like Marilyn Monroe or James Dean or Elvis Presley). There are some people that common sense would tell you, don't do it. Certain people who are very active in exploiting their image, you'd be prudent to stay away. But that applies to a relatively small number of people."

On Talent Releases

Rex Jobe, Image Bank Film: "In many of the shots that we have, all those rights have been cleared, and we can provide you with fully released models in many cases. In some cases there are fees due to the models. Sometimes there are additional fees in which you don't have to clear the rights, but we'll inform you of a payment that's going to have to be made in addition to the fee to the model. Or, there are some cases in which we don't have all of that fully cleared and we would give you the information to contact the people directly."

Patrick Montgomery, Archive Films: "In the stock photography world, modern color stock photographs have a tradition of being model-released. They're created to be put in catalogs to be used for advertising. And generally the photographer gets any models to sign a release saying you can do whatever you want with this."

"To a growing extent — although a lot of contemporary stock footage is not created for stock use the way photographs are — more and more as footage is created for stock use, it involves model releases. This is something you will hardly ever find in archival material because it wasn't

created for stock use. It was created for news use or some other use. At the time of creation it was never intended to be used for advertising so model releases weren't obtained."

"We have a lot of clients without experience call us up and say, 'What do you mean you don't have all the rights to give us the rights?' They don't understand that the way this stuff was created, it would never have model releases with it. Having said that, there actually are older vintage model-released photos and we have a big collection of them where we do have model releases, but those are pretty unusual."

"If you take some old news footage, you may not even be able to tell who a person is let alone seek their permission. In those instances, if a client wants to use some old footage in which we determine that they should get permission from the people in the pictures, and we either can't identify them or we can't find them, we will indemnify the client because we have an insurance policy that allows us to do that."

On Education vs. Commercial Uses

Patrick Montgomery, Archive Films: "In traditional media, basically, if it's an editorial product — a book, a magazine, a newspaper, a TV program — all you need is the copyright to the footage. You don't need permission from anybody who might appear in the footage. In the traditional world, if it's for advertising purposes or if it's for some type of product such as a T-shirt or poster or something like that . . . the laws are very gray about this . . . but over a long period of time case law has been built up to say you generally need somebody's permission."

"What's going on now is that a lot of people working in the CD-ROM and multimedia field have no knowledge of this tradition whatsoever. They come out of the computer business. They go to their lawyers and say, 'What shall we do?' And the lawyers, as lawyers often do, say, 'Clear everything.' In many cases, developers are being told they have to clear things they really don't."

"There's no real law and there's no real precedent, and they don't know what the business precedent has been. To give you an example, if you put someone's picture in an encyclopedia, you don't need their permission. If you put that encyclopedia on CD-ROM, you don't need their permission. But if you then turn it into a game, you start to get into a gray area. These are all questions that everybody is wrestling with. My response to our clients, I basically tell them what I just told you, but I tell them that in the end, we're not going to indemnify you so you need the advice of a lawyer and you have to proceed based on what you think the risks are. There's nothing inherent in a CD-ROM that makes it different from a book."

Todd Pavlin, Secondline Search: "For a

RIGHTS AND CLEARANCES: ADVICE FROM THE EXPERTS

- **Patrick Montgomery, Archive Films:** "Do your homework."
- **William Roberts, Media-Pedia Video Clips:** "Have documentation clearing your rights."
- **Todd Pavlin, Secondline Search:** "Get as many rights as you can up front. That's a hard and fast rule. If you believe in your product, and you think you've got something out there that has some value and you think might sell for a couple years, it's certainly in your interest to stretch your budget now and pay everyone off so you're not constantly in a nightmare once people realize it's a successful project and you're trying to go back and negotiate with them."
- **Rex Jobe, Image Bank Film:** "Make sure you understand what those rights and clearances are. If you sometimes try to go it cheap and not have proper clearances or not deal with someone who can give you those assurances, it can get awfully expensive."
- **Todd Pavlin, Secondline Search:** "The more famous the footage, the more valuable the footage is, the more rights are involved. Are you using an image in a way that the subject should be paid or not? That's an interesting question and different people feel differently about it. That's something the developer and the distributor need to make a decision about and need to be apprised of by some experts before they make that decision. You need to get some advice about what you're facing legally."



straight educational product — an encyclopedia — most people are taking the tack that you do not need to pay talent or do a lot of rights of privacy/rights of publicity thing because it exists under the educational banner. Just like when PBS does a documentary, they don't necessarily clear talent."

"But if this is a game, and its main bent is commercial, or if it has game elements in it — is Trivial Pursuit a game? or is it educational? — there are very gray areas here. What rights do you have to clear? Who's going to clear those rights? Have you spoken with your lawyer? Here's what we recommend as people who've been doing rights

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STOCK FOOTAGE ONLINE

You need footage, but you're not sure where to begin. Of the hundreds of footage providers, which ones should you call? Will they have what you're looking for? Are you even sure what you're looking for? Today's not the day for phone tag and voicemail hell. Besides, hearing about the footage isn't enough. You want to see it. Now. You can't wait for a tape to arrive. And your studio is cluttered enough. You don't need an onslaught of videotapes landing on your desk.

Fire up your Web browser and get ready to surf. Search a company's catalog or view a thumbnail of footage. Ask questions or place an order via email. All from the comfort of your desktop.

It's possible.

Footage.net, a service of Full Circle Productions, is a Web site devoted to the needs and interests of stock footage providers and users. Global Village Stock Footage is one company that handles almost all its search and ordering services through the Internet. And new network services for the production community, such as Sprint Drums and Pacific Bell's Media Park, are gearing up for commercial release.

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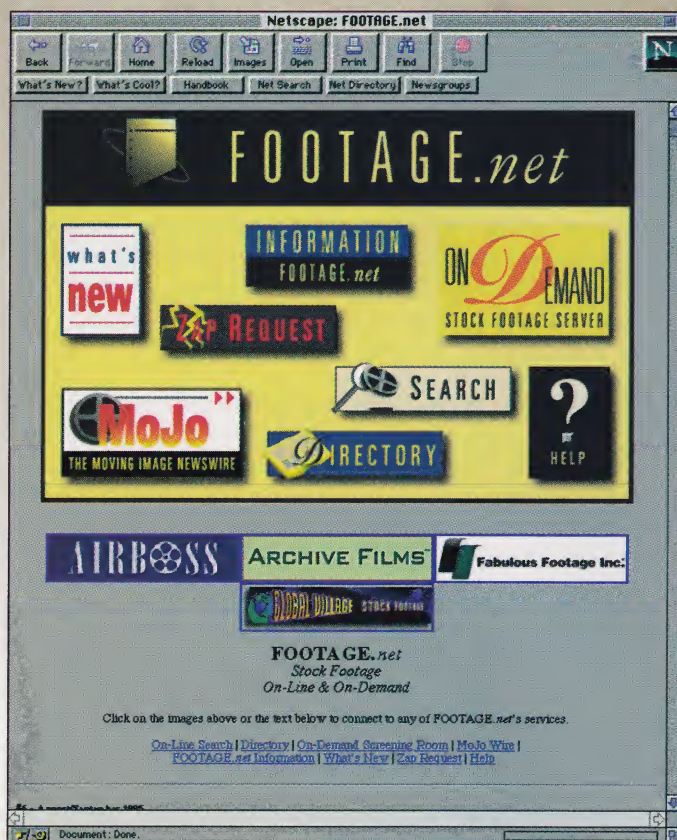
John Tariot, publisher of Footage.net, calls his service a catalog of catalogs — with additional resources thrown in. Here's how it works. The Web site is divided into several sections:

- A directory, which includes basic information about each company and a description of the company and its content.
- A search section in which users can do a keyword search that returns the directory listings of companies whose descriptions match the footage request.
- The "On Demand Stock Footage Server," which lets users view single-frame thumbnails or moving clips from participating companies.
- The "Zap Request" section, in which users can broadcast a footage search request to all Zap Request participants.
- Industry news.
- A full-text online version of the U.S. Copyright Law, information about the National Archives, ordering broadcast transcripts, etc.

Footage owners supply information about their company and services. A free basic listing includes company name, address, phone and fax numbers, an explanation of the company or the footage available, and up to 400 keywords. Or, for \$3,000 a year, Footage.net will create a homepage to the clients' specifications. They can then mount an online stock footage catalog that users can keyword search.

What people dialing in to Footage.net see is totally dependent on what Footage.net's clients provide. Some may have single-frame thumbnails representative of a clip. Others may have moving clips, which typically range from 5 seconds to 20 or 30 seconds in length, running at 15 frames per second.

If users want more information, they can shoot email research requests directly to footage owners who have paid to be part of that service. The ultimate goal will be conducting the complete transaction, including payment and delivery, online. First, however, security on the Internet and compression standards must improve. At the rate technology changes, it may not be long before online transactions become a widespread reality.



"It's been a building process since November 1994. It started as a peep and it keeps growing by a steady number of hits per day," notes Tariot. "The response from clients has been overwhelmingly positive." He estimates thousands of daily hits from all over the world. "We provide global, 'round-the-clock marketing," he continues. People looking for footage also benefit. "We're service oriented. We want them to know what's out there."

• • • • •

Producer Michael Heumann built up a collection of travel footage he wanted to license as stock: the Global Village Stock Footage. But the searching aspect of the business was consuming too much time.

"As soon as the Web came along, I said, 'A-ha!' This is the perfect place to put this database online and let people search it themselves. That way it doesn't take my time until they find what they're looking for," Heumann says.

People looking for footage go to Global Village's Web site, hit the search button, and type in keywords for a search. The server will return a list of shot descriptions based on responses found in the database. Select the ones you want to see, paste them into an email, and email the request.

Currently, fulfillment is done on tape, by mail. Heumann has a few images up now as GIF files, and he says QuickTime movies are coming soon.

"The more people find out about it, the more people realize this is a cost-effective way," Heumann explains. "There are still stock footage houses that charge up to \$50 an hour just to see if they've got something. This way, people can check it out and decide whether they want to shoot themselves or get it from us. It keeps the final costs down for everyone."

To provide more service, Heumann also solicits footage from other producers.

STOCK FOOTAGE ONLINE

They send shot descriptions in ASCII files, which Heumann then modifies to fit his database and tags with the other producers' ID codes.

"Then when a customer wants something that somebody else has, we split the royalties with them, either on a fulfillment or referral basis depending on whether we have the footage inhouse or just the database. The database is growing and will continue to do so, I hope," he says.

Like many others in the stock footage business, Heumann is looking forward to technology's advances.

"The compression technologies make it possible to send better and better stuff with less and less memory," Heumann says. "We're hoping that within the next couple of years there are going to be some breakthroughs and we'll be able to send people broadcast-quality video from computer to computer. The fantasy is that the whole business happens between computers."

• • • •

Network services such as Sprint Drums and Pacific Bell Media Park build a virtual studio for creative professionals and a new way to do business — especially when the production team is located in multiple offices.

Search for content. On Drums, browse footage from Energy Productions' Timescape Image Library. On Media Park, scout talent or locations, check out music from Network Music, or view footage from Energy Productions or Archive Films. Enter a keyword. The search returns thumbnails and textual information about the clip. Preview the clip. See the action. Send a footage order or initiate the licensing process online.

Collaborate online. Transfer files among other Drums or Media Park customers. Video clips — the largest and most demanding files to send — can usually reach their destination in a matter of minutes. That beats the hours an overnight service would take. Or the days needed to take it someplace yourself. Annotation software lets you mark a clip with voice or text messages or a digital marking pen.

Collaborate in real time. Screen sharing, whiteboarding features, and videoconferencing let you and various collaborators view footage simultaneously, mark it up, talk, and watch your client's or colleague's reaction. Videoconferencing and whiteboarding currently are features of Drums, and Media Park will be adding them soon. (Whiteboarding features let one user mark a clip and place it in a section of the window — the whiteboard — so other online users can see the annotated clip. Then, another user can take control of the pen.)

Reduce travel. Save time. Save money.

To get up and running on Sprint Drums, you need an SGI Indy or Onyx workstation. A subscription to the service includes the Drums software and a SprintLink T1 connection. Getting local access is your responsibility. Sprint isn't disclosing commercial subscription fees yet.

Pacific Bell Media Park runs on Macs, PCs, and SGI machines. You'll need about 20 megs of additional hard disk space. Pacific Bell provides network interface equipment, your choice of four network connections (ISDN, T1, DS3, or OC3), and the Media Park application software. DS3 and OC3 run over fiber. Most participants in Media Park have opted for the T1 connection. The cost will be based on a subscription fee and connection charges. Pac Bell isn't disclosing commercial rates yet, either.

"Media Park was designed to be affordable for the smallest developer working out of their house and also appeal to the large studios that often need the performance at any cost," says Michelle Fisher, director of Media Park. "The bandwidth is there. For those who want it and need it, you can buy as much bandwidth as you want."

Drums and Media Park were still in the trial stages as we went to press. Sprint is looking for a fall 1995 commercial release of Drums, and Media Park should be going commercial in early 1996. About 30 companies from various areas of the production community — film studios, producers, multimedia software developers, ad agencies and clients, post-production facilities, computer

companies, stock footage houses, etc. — were involved in each project. The Sprint Drums trial encompassed the contiguous 48 states (though the Internet access provided by Drums makes for a global reach in terms of file transfer to others with Internet connections), while Pacific Bell's Media Park covers California only.

Stock Footage Online

Energy Productions and Archive Films have digitized portions of their collections for the content search sections of these projects, making available thousands of clips. "The challenge to digitally convert thousands of hours of content is formidable," says Rob Sherman, vice president of new media development for Energy Productions. Yet it's a challenge that holds promise.

"What interested them was the whole notion of being able to get broader exposure to a wide variety of customers at minimal cost," says Fisher. "Once it's in a digital format, we can make it available over the network 24 hours a day, seven days a week. From their perspective, they don't need to hire another librarian to answer phones and search for footage and then mail it out."

Many Drums and Media Park participants use the content search capabilities as a way to generate ideas. "If you're a producer or director, you get a chance to get a sense of what material is available from Energy," Fisher says. "By

“There's a digitization, compression revolution going on out there and it's going to change the way I do business.”

— Todd Pavlin, *Secondline Search*

actually seeing it, it gives you the chance to perhaps think about things you hadn't thought about. Or it can inspire you to go in another creative direction as opposed to just getting a catalog that has a bunch of still images in it. With video, you get to see it in action."

The clips in the Sprint and Pacific Bell trials are not production-quality footage, but that's usually just fine for the needs of a production team making decisions about sequences and edits. "All of the companies I've talked to who are using Drums believe the low-res versions are fine because of the types of decisions they're making," says John Heiman, market development manager of Sprint Multimedia. "This is not meant to be a viewing mechanism for broadcast-quality product. It's a production tool. It doesn't have to be at the highest resolution."

Nor does the delivery of stock footage take place online. When the projects go commercial, the browsing online/delivery offline model likely will remain. "Online delivery is going to be an expensive proposition," says Fisher. "The digitizing is not the issue. The file is so huge. For those who want it delivered on the Net, to get it in a timely manner, they'll need at least DS3 service. The bandwidth is available for those who would want that."

But the ability to search and collaborate online eases many complications in the creative process.

Says Sprint's John Heiman: "There's tremendous relief when you can show your client what you're working on in real time, and you look at it frame by frame by frame, and you don't have to hope that they see what you're seeing."

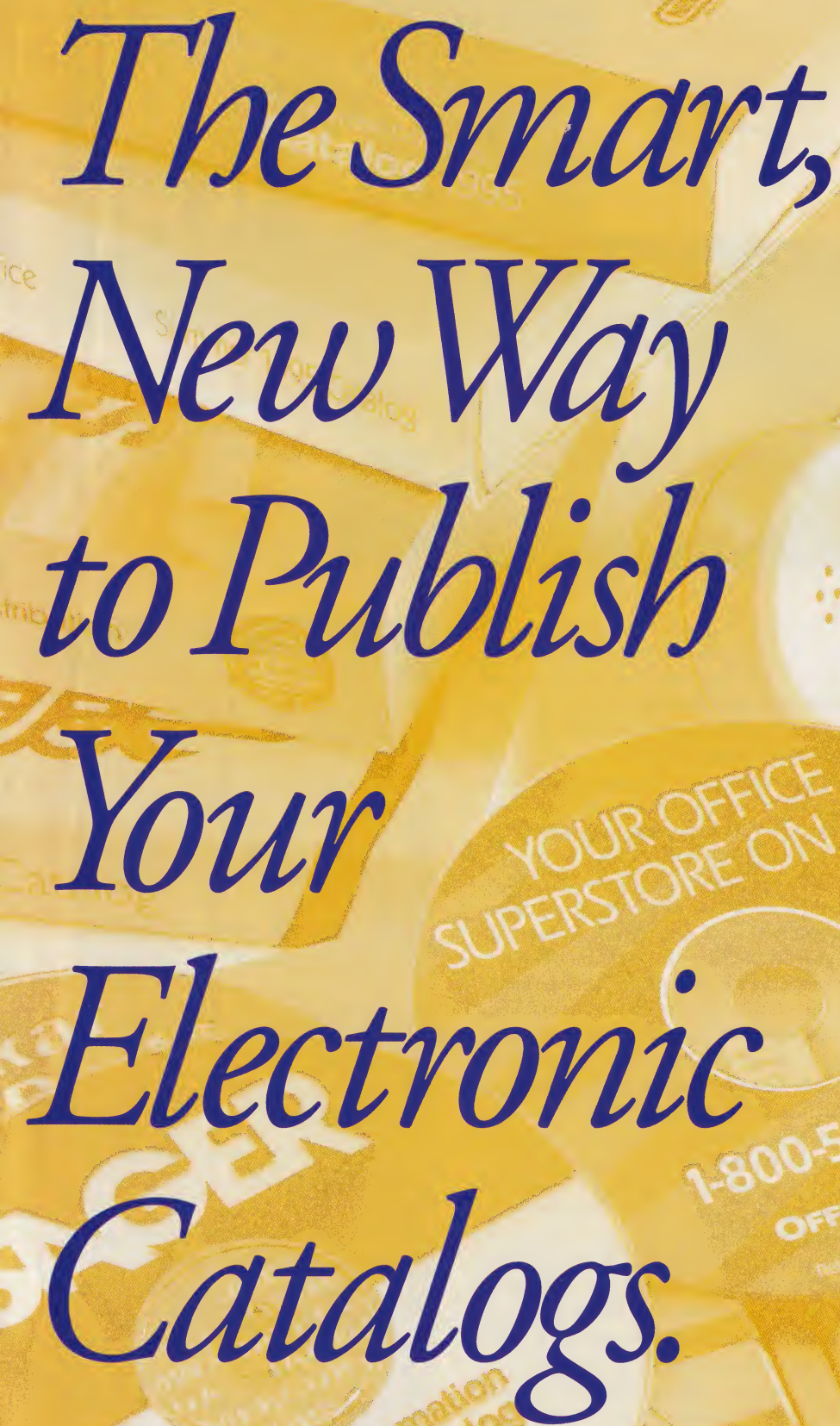
CHECK IT OUT ONLINE:

<http://www.footage.net:2900/>

<http://www.videosource.com/footage/>

<http://www.sprint.com/drums/>

<http://www.pacbell.com/Products/Media-Park/>



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Continued from Page 52

and clearance work for the past 10 years. . . .

"The key is that you get a good indemnification from the library you're using. That's what protects people. That indemnification might vary. In other words, if the interactive developer's lawyers make a decision not to clear talent for an encyclopedia product or an educational product, I'm not going to indemnify you against talent claims. That's your decision. I will indemnify you that you have rights to use the footage, that copyright to the title has been cleared or that the footage is in the public domain and that's not an issue."

Rights to Publicity and Privacy

Patrick Montgomery, Archive Films: "You have two issues: right to privacy and right to publicity. Many states have no laws regarding these issues. Some states do. They're not uniform, although there is a legal body being built up that is based on the California law that says that your right to exploit your image survives for 50 years after your death for people who have exploited their image during their lifetime. If you're a private individual, the laws of the rights to privacy apply to you. And in many states, when you die, your rights die. If you are somebody who exploited your image during your lifetime, then the rights of publicity apply. Sometimes the right survives and sometimes it doesn't."

Todd Pavlin, Secondline Search: "Rights of privacy and rights of publicity, especially of people who are deceased, are quite different throughout the world. If you're doing a game in the United States and you want to use shots of Elvis Presley, you better pay the Presley estate or make a deal with them. In Europe, those laws don't exist as much in terms of performers. They do exist in terms of the person who made the film. But there's no right of publicity per se in most of Europe and certainly not in the Far East."

"There are other things that are hidden. Copyright laws are different in the United States than they are in Europe. GATT and the other treaties that are evolving are going to change that. Moral rights exist in Europe. They don't exist here. In the United States, artists can lose control of their work after a certain amount of years, and work can flow into the public domain. Those laws have changed over the years. Depending on when you were an artist and when you produced a work, there are different rules. In Europe, the creator holds the rights."

On Public Domain

William Roberts, Media-Pedia Video Clips: "People think that public domain is a classification. Public domain is an anti-status. The government doesn't certify that something is in the public domain. The government certifies that something is copyrighted. Public domain means you can clearly prove it isn't copyrighted. Right there that says it all."

Add clips from
feature films or . . .

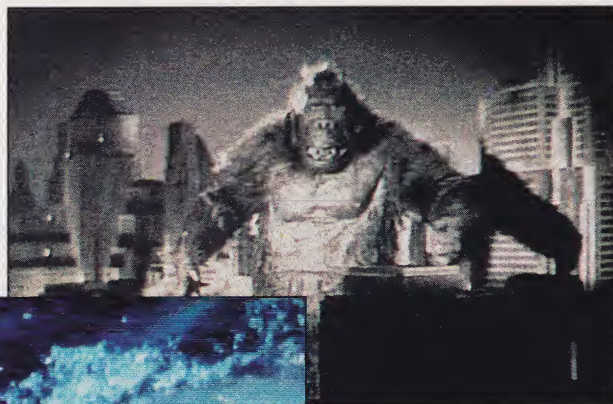


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interactive application.

"People do a simple copyright search and don't find a copyright, and they say, okay, this is okay to use. There are so many variable cases of why you might not find a copyright or think it's expired when in actuality it isn't. If you have a piece of footage and you believe it's in the public domain, you need a paper trail to prove that, just as much as if it has a copyright. If you don't have the documentation on the clip you're using, you're in trouble."

"Public domain means it was never copyrighted, or the copyright expired, or it was a government work. Government works are not copyrightable. However, that is very tricky because the fact that something was done for the government doesn't exactly mean somebody doesn't hold the copyright on it. It only means the government can't hold the copyright. If you do a work for the government it's considered to be a work for hire. A work-for-hire agreement may stipulate that the copyright goes to the person who paid for it, and if it was the government, they are legislatively barred from holding a copyright on it. However, a work-for-hire agreement may stipulate that the copyright is retained by the person who did the work even though they were getting paid to do it."

Todd Pavlin, Secondline Search: "Public domain in the United States does not mean public domain around the world, so if you're doing a U.S. product, you might be able to use things, cheap images in the public domain. If you plan on distributing it internationally, that's certainly a trap. You can get sued internationally big time if you step over that line. There are European films and Mexican films that are in the public domain in the United States, but once you sell your product in Europe or Mexico they are not in the public domain."

TIPS FOR SUCCESSFUL STOCK FOOTAGE SEARCHES

- Begin early. Don't put it at the end of the schedule. It's time consuming.
- Keep your searches as narrow as possible.
- Send as much information as you can and put it in the context of a storyboard.
- Have a few backup ideas ready in case you can't get clearance for what you want.
- Don't make any assumptions about what's available and the cost until you've done your homework.
- Do the best search you can do, but take into consideration cost, turnaround, and any hidden costs.
- Check the quality of the footage and make sure you know what you're getting so you avoid graininess and technical glitches that would create quality problems later.
- Take a look at the material because the style and standards of every director and every producer are different.
- Negotiate rights up front.
- Get all the clearances and indemnification taken care of.

STOCK IN THE ATOMIC AGE

ILLUSTRATING NUCLEAR HISTORY WITH STOCK FOOTAGE

It started as a HyperCard stack. A project to keep college physics major Chris Griffith busy during a summer of unemployment. It ended up as *Atomic Age*, an educational CD-ROM from AJ Software. Griffith, now senior producer and owner of AJ Software, developed the idea with a physics professor who taught science history.

"It starts by explaining what an atom is and takes you through the whole history of the atom, from its discovery through the fall of the Soviet Union, with all kinds of movies and photos and actual documents you can pull up online," Griffith explains.

The disc includes biographical information on the major players in the development of the atomic bomb, text, documents, photos, footage of the Manhattan Project, the bombings of Hiroshima and Nagasaki, the Cold War, animations of how bombs work, and a glossary of terms.

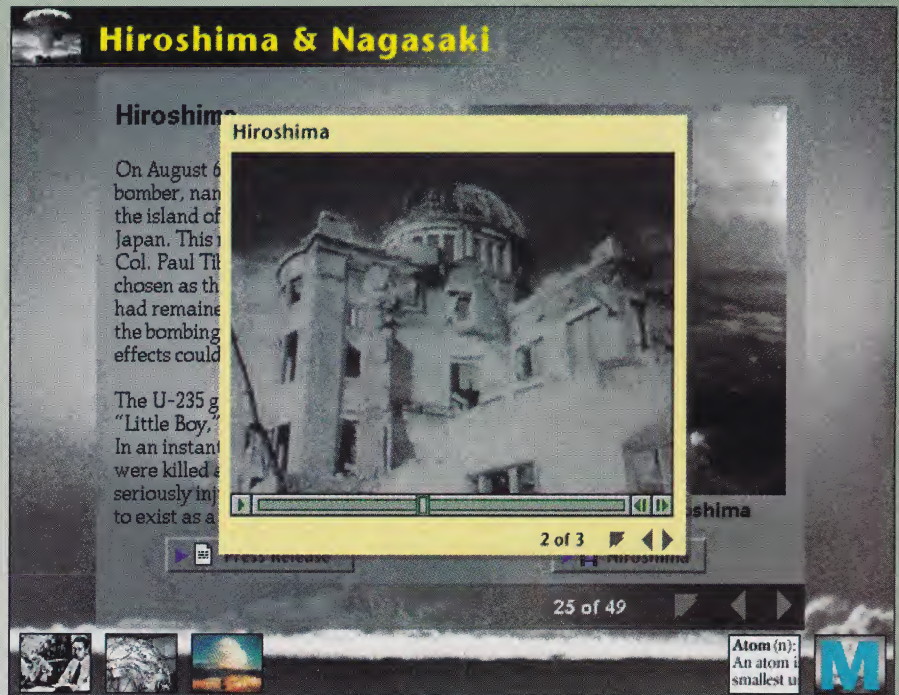
With a development team of just five, Griffith took the reins when it came to tracking down footage and historical photos for the CD-ROM. Before getting the go-ahead from his publisher, Aris Entertainment (now Sofitkey International), Griffith marked catalogs from likely sources of footage and laid some groundwork using the limited searches they would do for free.

When the project shifted into high gear, Griffith allowed six weeks for his search. He called The WPA Film Library, the National Archives, and other branches of government, which sent him more than 50 tapes that averaged 60 minutes in length. From that, he formulated his final selection of more than 30 minutes of footage.

The historical subject matter of *Atomic Age* called for archival footage. Griffith opted for newsreels. "We wanted an historical flavor with cheesy music and the overemphasis tone of the narrator. It was an easy solution under a short deadline," he explains.

"The search was actually pretty easy. I didn't need a generic man doing such and such. I needed the newsreel statement after the dropping of the bomb on Hiroshima." Footage came from the WPA Film Library's collection of newsreels, the National Archives, and other branches of government such as the Department of Energy and the U.S. Air Force, which supplied photos and footage free of charge. "There was a nominal fee for the Trinity blast footage from the D.O.E., which was mostly to cover their costs because it gets used so much," Griffith says.

Although much of the footage was in the public domain or in the National Archives, using the WPA Film Library proved more convenient. "I knew a lot of what I needed was in the Archives in one form or another," Griffith says. "I tried to find a few folks who would search the Archives for us — research firms based in Washington that specialize



The CD-ROM *Atomic Age* uses text, still photos, and footage to demonstrate the building of the atomic bomb and the destruction inflicted upon Hiroshima and Nagasaki.

in going into the National Archives to do research — several never returned my calls. The only one who did got us some good stuff, though it cost a bit more.

"Overall, the licensing was about the same across the board," he goes on, "so it came down to whether the footage or photos were what I wanted."

Additional clearances were minimal. "Most of it was taken care of in the newsreel itself," Griffith says, though some photos were more problematic. "We have a shot of Einstein and Leo Szilard re-enacting the signing of the letter to Roosevelt. And that's really the only one we had to search down and contact a lawyer and explain the whole thing to them. We couldn't find the owner of one photo. I wish we could have used it."

Footage was ordered on Beta SP. Griffith did his own digitizing. "I have an extensive digital video background, so I preferred having the control," he tells us. "We know the ins and outs of Indeo and Cinepak and DVI." He compressed the footage into Cinepak running at 320x240 and 15 frames per second.

Atomic Age has evolved from a summer project to a commercial product. Fortunately, the stock footage industry has evolved as well. As Griffith puts it, "When I first talked to stock houses about two years ago, many would say, 'CD-ROMs? What's that?' Nowadays it's, 'Oh yeah. Okay, no problem.' They're fully up to speed now, which is very nice from a producer's standpoint."

STOCK FOOTAGE SOURCES

ABC News VideoSource

125 West End Ave.
New York, NY 10023
212.456.5421
800.789.1250
212.456.5428 FAX
Content: ABC News (1963-present),
Worldwide Television News, British Movie-
tone Newsreels, Universal Newsreels
Formats: Beta SP
Licensing: Per project, 5-10 years
Fee: \$5/sec. to \$83/sec., 30 sec. minimum
Reader Service #116

Action Sports Adventure

1926 Broadway
New York, NY 10023
212.721.2800
212.721.0191 FAX
filmclip@ios.com
Content: Sports — professional, Olympics,
extreme, archival, recreational
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #117

Aerial Focus

8 Camino Verde
Santa Barbara, CA 93103
805.962.9911
805.962.9536 FAX
Content: Extreme sports — skydiving,
hang-gliding, base jumping
Formats: D2, Beta SP, film, 35mm stills
Licensing: Non-exclusive worldwide
Fee: Varies
Reader Service #120

Aerial Images

325 Lacey Dr.
New Milford, NJ 07646
201.262.7279
201.967.1614 FAX
Content: Air to ground photos and film
of most large cities and surrounding com-
munities in the Northeastern U.S.
Formats: 35mm, 1-inch
Licensing: Negotiable
Fee: Varies
Reader Service #121

AirBoss Stock

4421 Bishop Ln.
Louisville, KY 40218
502.454.1593
502.454.3197 FAX
AirBossStc@aol.com
Content: Military and aviation since WWII
Formats: Beta SP, 3/4-inch, DZ, VHS, SVHS
Licensing: Negotiable
Fee: Varies
Reader Service #122

Airline Film & TV Promotions

13246 Weidener St.
Pacoima, CA 91331
818.899.1151
818.896.5928 FAX
Content: Airplanes
Formats: video, 35mm stills
Licensing: Negotiable
Fee: Varies
Reader Service #123

Alaska Video Postcards

Box 112808
Anchorage, AK 99511-2808
907.349.8002
907.349.2208 FAX
Content: Wildlife, scenery, Alaskan life

Formats: Beta SP, Betacam

Licensing: Negotiable
Fee: \$20/sec. to \$60/sec.
Reader Service #124

A.M. Stock Exchange

5673 Whitnall Hwy.
N. Hollywood, CA 91601
818.762.7865
818.762.7886 FAX
Content: Contemporary U.S. cities, sky-
lines, architecture, etc.
Formats: 3/4-inch, 35mm
Licensing: All media worldwide and all
media in perpetuity
Fee: \$50/ft. to \$200/ft., 10-foot minimum
Reader Service #118

Archer-Telecine International Stock Footage Libraries

Box 8426
Universal City, CA 91618
818.889.8246
818.889.5605 FAX
Content: Worldwide establishing shots and
traffic (1957-1995), commercial transporta-
tion, sky
Formats: S-VHS, 3/4 U-Matic, Betamax,
Hi-8
Licensing: Worldwide in perpetuity
Fee: \$40/sec. to \$200/sec., 10 sec.
minimum
Reader Service #125

Archive Films

530 W. 25th St.
New York, NY 10001
800.536.9574
212.620.3955
212.645.2137 FAX
CompuServe forum: GO: ARCFILM
Content: History, entertainment 1894-1980s
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #126

A.R.I.Q. Footage

12 Goodfriend Dr.
East Hampton, NY 11937
800.249.1940
516.329.9200
516.329.9260 FAX
Content: Musical performances, classic TV,
Americana, world history 1903-1977
Formats: All
Licensing: Negotiable
Fee: Varies; special multimedia rates
Reader Service #119

BBC Library

747 3rd Ave., 6th Fl.
New York, NY 10017
212.705.9300
212.705.9342 FAX
3500 W. Olive Ave., Ste. 110
Burbank, CA 91505
800.966.5424
818.840.9770
818.840.9779 FAX
65 Heward Ave., Ste. 111
Toronto, ONT M4M2P5
416.469.1505
416.469.0642 FAX
Content: News and current affairs, tech-
nology, travel, science, religion, arts, history
Formats: As requested
Licensing: Negotiable
Fee: Varies
Reader Service #127

Budget Films Stock Footage

4590 Santa Monica Blvd.
Los Angeles, CA 90029
213.660.0187
213.660.5571 FAX
filmclip@aol.com
Content: News, industrial, comedy, drama,
musical, animation, travel, etc., 1900-1970s
Formats: VHS, S-VHS, 3/4-inch, 1-inch,
Beta SP, digital formats
Licensing: Negotiable, usually in perpetuity
Fee: \$200 to \$400 per clip, up to five
minutes
Reader Service #128

Cable Films & Video

Country Club Station, 7171
Kansas City, MO 64113
800.514.2804
913.362.2804
913.341.7365 FAX
Content: Classic motion picture footage
Formats: Beta SP, Betacam, SVHS, U-Mat-
ic, 1-inch, PAL, Secam, NTSC
Licensing: Negotiable
Fee: Varies
Reader Service #129

CBS News Archives

524 W. 57th St.
New York, NY 10019
212.975.2875
212.975.5442 FAX
Content: CBS news from 1954 to present
Formats: All
Licensing: Per production, by market
Fee: \$16/sec. to \$41.67/sec.
Reader Service #130

Chisolm Stock Footage

99 Atlantic Ave., Ste. 50
Toronto, ONT M6K 3J8
Canada
416.588.5200
416.588.5324 FAX
Content: Variety, archival to present
Formats: 1-inch, 3/4-inch, VHS, Betacam,
S-VHS
Licensing: Negotiable
Fee: Varies
Reader Service #131

Cine-Pic Hawaii

1847 Pacific Heights Rd.
Honolulu HI 96813
808.533.2677
Content: Archival film, 1898 to present
Formats: Betacam
Licensing: Negotiable, per-project basis
Fee: \$50/sec., \$1,000 minimum
Reader Service #132

Cinenet (Cinema Network)

2235 First St., Ste. 111
Simi Valley, CA 93065
805.527.0093
805.527.0305 FAX
Content: QuickStock CD-ROM and Cinenet
Library: variety of subjects
Formats: CD-ROM, D1, D2, 1-inch, Beta
SP, 3/4-inch SP, VHS, Hi-8
Licensing: Negotiable
Fee: Varies
Reader Service #133

The Clip Joint For Film

833 B N. Hollywood Way
Burbank, CA 91505
818.842.2525
818.842.2644 FAX
Content: Feature film and old TV clips

Formats: All

Licensing: Use rights and third-party
clearances
Fee: Varies
Reader Service #134

CNRS (National Center for Scien- tific Research)

1 place Aristide Briand
92195 Meudon Cedex
France
33.1.45.07.56.86
33.1.45.07.58.60 FAX
Content: Sciences, social sciences, arts
and culture
Formats: 16mm, Beta SP, VHS, PAL,
Secam
Licensing: Negotiable
Fee: Varies
Reader Service #135

Coe Film Associates

65 E. 96th St., Ste. 1B
New York, NY 10128
212.831.5355
212.996.6728 FAX
Content: Documentaries, dramas
Formats: 1-inch, Beta SP, 16mm
Licensing: Varies
Fee: Varies
Reader Service #136

Court TV (Courtroom Television Network)

600 3rd Ave., 10th Fl.
New York, NY 10016
212.692.7892
212.692.7880 FAX
Content: Hearings and trials since 1991
Formats: VHS, Beta SP, 3/4-inch
Licensing: One year renewable
Fee: Varies
Reader Service #137

Crosspoint Digital Post & Transfer

940 Wadsworth Blvd.
Lakewood, CO 80215
303.232.9572
303.232.2241 FAX
<http://www.crosspoint.com/xpoint>
Content: Scenics and aerials of Rocky Mtn.
West, time lapse, variety
Formats: D1, D2, DBeta, Digital Betacam,
Beta SP, Betacam, 3/4-inch SP, 1-inch
Licensing: Negotiable, one-time buy-out
available
Fee: Varies
Reader Service #138

Larry Dorn Associates

5550 Wilshire Blvd., Ste. 306
Los Angeles, CA 90036
213.935.6266
213.935.9523 FAX
Content: Period footage
Formats: 3/4-inch, VHS, 35mm
Licensing: Negotiable
Fee: Varies
Reader Service #139

Energy Productions

12700 Ventura Blvd., 4th Fl.
Studio City, CA 91604
800.462.4379
818.508.1444
818.508.1293 FAX
CompuServe Forum: GO:ENERGY
Content: Variety
Formats: All, also clip library on CD-ROM
Licensing: Negotiable
Fee: \$40/sec. to \$350/sec. with 10 sec. min-

imum; \$49.95 for CD-ROM collection
Reader Service #140

Fabulous Footage

630 9th Ave.
New York, NY 10036
800.361.3456
212.459.3400
212.463.1391 FAX
Content: Variety
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #141

Film Bank

425 S. Victory Blvd.
Burbank, CA 91502
818.841.9176
818.567.4235 FAX
Content: Variety
Formats: All
Licensing: Negotiable
Fee: \$30/sec. to \$300/sec., 10 sec.
minimum
Reader Service #142

Fish Films Footage World

4548 Van Noard Ave.
Studio City, CA 91604-1013
818.905.1071
818.905.0301 FAX
Content: Variety archival and contemporary
Formats: All
Licensing: Available upon request
Fee: Available upon request
Reader Service #143

Footage Factory

10590 Wilshire Blvd., Ste. 503
Los Angeles, CA 90024
310.446.9630
Content: Cityscapes, landmarks, scenics,
kids
Formats: D1, Beta SP, 1-inch, 3/4-inch SP,
CDI CD-ROM
Licensing: Negotiable
Fee: \$50/sec. to \$125/sec., 10 sec.
minimum
Reader Service #144

Four Palms

11260 Roger Bacon Dr.
Reston, VA 22090-5203
703.834.0200
703.834.0219 FAX
Content: People (occupations, professions,
recreation, relationships, sports), Transportation
(aviation, bridges, highways, marine, rail)
Formats: CD-ROM
Licensing: Royalty-free buy-out
Fee: \$99 per title, \$299 for set of five titles
Reader Service #145

Al Giddings Images Unlimited

75 Bridger Hollow Rd.
Pray, MT 59065
406.333.4300
406.333.4308 FAX
76025.3335@compuserve.com
Content: Nature, wildlife, ocean
Formats: Beta SP, 16mm, 35mm
Licensing: Negotiable
Fee: Varies
Reader Service #146

Global Village Stock Footage

Box 1818
Sebastopol, CA 95472
800.798.3463
707.829.0127
707.829.9542 FAX
search@videosource.com
footage@videosource.com
info@videosource.com
Content: Travel
Formats: Betacam, 3/4-inch, 1-inch
Licensing: Non-exclusive rights, per-product,
in perpetuity
Fee: Varies (\$15/sec. to \$30/sec.)
Reader Service #147

Grinberg Film Libraries

630 9th Ave.
New York, NY 10036
212.397.6200
212.262.1532 FAX
Content: Variety, archival to contemporary
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #148

Gulliver Film Productions

Box 371
Paddington, Qld.
Australia 4064
61.7.3367.0899
61.7.3368.2164 FAX
gullfilm@mailbox.uq.edu.au.
http://www.uq.edu.au/gulliver/
Content: Australian wildlife, natural his-
tory, landscape
Formats: 16mm, 1-inch, Beta SP, digital
Licensing: Negotiable
Fee: Varies
Reader Service #149

Hollywood Newsreel Syndicate

1622 N. Gower St.
Hollywood, CA 90028
213.469.7307
213.469.8251 FAX
Content: Hollywood celebrities, parties,
premieres, awards, etc.
Formats: 35mm, 16mm, Beta SP, 1-inch,
3/4-inch, VHS, CD-ROM
Licensing: All rights available in
perpetuity
Fee: \$25/sec., 6 sec. minimum per shot
Reader Service #150

Hot Shots/Cool Cuts

1926 Broadway
New York, NY 10023
800.896.2547
212.799.9100
212.799.9258 FAX
filmclip@ios.com
Content: Variety, historical to contemporary
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #151

Idea Factory

3753 Howard Hughes Pkwy., 2nd Fl.
Las Vegas, NV 89109-0938
800.882.7397
702.731.2145
702.731.9281 FAX
IdeaFacto@aol.com
Content: Las Vegas — aerials, hotels,
gambling, neon (contemporary and
historic)
Formats: Beta SP
Licensing: Buy-out package
Fee: \$275 for 30-minute package
Reader Service #152

The Image Bank

Film Division
111 5th Ave., 4th Fl.
New York, NY 10003
212.529.4008
212.529.8889 FAX
Content: Variety, archival to contemporary
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #153

International Historic Films

3533 S. Archer Ave.
Chicago, IL 60609
312.927.2900
312.927.9211 FAX
Content: Military history, newsreel,
propaganda of former U.S. enemies
Formats: All
Licensing: Negotiable
Fee: Varies (\$3/sec. to \$60/sec.)
Reader Service #154

IVN Communications

2246 Camino Ramon
San Ramon, CA 94583
510.866.1121
510.866.9262 FAX
Content: Travel, landmarks, nature
Formats: 16mm, video
Licensing: Negotiable
Fee: Varies
Reader Service #155

MacGillivray Freeman Films

Box 205
Laguna Beach, CA 92652
714.494.1055
714.494.2079 FAX
Content: Aerials
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #156

Media-Pedia Video Clips

22 Fisher Ave.
Wellesley, MA 02181
617.235.5617
617.237.3440 FAX
Content: Variety
Formats: VHS, S-VHS, Hi-8, 3/4-inch SP,
Beta SP, CD-ROM
Licensing: Royalty-free buy-out collection
Fee: \$149 to \$495 depending on format
Reader Service #157

Mediacom

Box 36173
Richmond, VA 23235
804.794.0700
804.794.0799 FAX
AppleLink mediacom
Content: Variety
Formats: VHS, S-VHS, Hi-8, 3/4-inch SP,
Betacam, Beta SP, 1-inch, D2, Mini, CD-ROM
Licensing: Royalty-free buy-out collection;
licensed at purchase for non-broadcast use;
broadcast rights available
Fee: \$149 and up
Reader Service #158

Merkel Films

Box 2247
Santa Barbara, CA 93120
805.882.1904
805.882.9104 FAX
Content: Sports, tropical, wildlife, Stealth
bombers and fighters
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #159

Military/Combat Stock Footage

Box 399
Union, WA 98592
360.898.8080
360.898.8081 FAX
Content: Military, combat, war footage
from WWI to present
Formats: 3/4-inch SP, Beta SP, D2, 1-inch
Licensing: None (public domain)
Fee: Varies
Reader Service #160

Warren Miller Films

2540 Frontier Ave., Ste. 104
Boulder, CO 80301
303.442.3430
303.442.3402 FAX
peters@wmfilms.com
Content: Mountain sports, sailing, scenics,
time-lapse, comedy, historical
Formats: 35mm, 16mm, D1, 1-inch,
3/4-inch, VHS, Beta SP, slides, prints
Licensing: Varies
Fee: \$50/sec. to \$350/sec.,
10 sec./\$1,000 minimum
Reader Service #161

Mirage Multimedia/

Great American Stock
39-935 Vista del Sol

Box 6000
Rancho Mirage, CA 92270
619.779.1170
619.779.0593 FAX
WordMaven@aol.com
Content: Military, historical, medical
Formats: Betacam, Beta SP, 3/4-inch SP,
VHS, S-VHS
Licensing: Quoted per intended use
Fee: Varies
Reader Service #162

Moviecraft

Box 438
Orland Park, IL 60462
708.460.9082
708.460.9099 FAX
larryu@moviecraft.com
Content: Pre-1964 TV shows, historical,
celebrity, Americana
Formats: 3/4-inch U-Matic, S-VHS
Licensing: Negotiable
Fee: Varies
Reader Service #163

National Archives and Records Administration

Motion Picture, Sound, and Video Branch
8601 Adelphi Rd.
College Park, MD 20740-6001
301.713.7060
301.713.6904 FAX
mopix@nara.gov
Content: U.S. government and military
activity, etc.
Formats: All
Licensing: Inquire — most material is
public domain, some is restricted
Fee: Varies
Reader Service #164

National Film Board of Canada

Box 6100 Centre Ville
Montreal, Quebec
Canada H3C 3H5
514.496.2449
514.283.5729
s.menard@nfb-onf.ca
Content: Canadian wildlife, politicians,
North American natives, lifestyle, scenics,
cities, world wars
Formats: 16mm, Super 16, 35mm, Hi-
8, Betacam, Beta SP, D2, 1-inch, NTSC, PAL
Licensing: Negotiable
Fee: \$6/sec. to \$50/sec.
Reader Service #165

NBC News Archives

30 Rockefeller Plaza, Rm. 224
New York, NY 10112
212.664.3797
212.957.8917 FAX
ychin@nbc.com
Content: Archival — four decades of
news, culture, outdoors, wildlife
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #166

New & Unique Videos

2336 Sumac Dr.
San Diego, CA 92105
619.282.6126
619.283.8264 FAX
Content: Scenics, cities, people, wildlife
Formats: Video, photos, and slides
Licensing: Negotiable
Fee: \$5/sec. to \$25/sec.
Reader Service #167

NFL Films

330 Fellowship Rd.
Mt. Laurel, NJ 08054
609.778.1600
609.722.6779 FAX
Content: NFL football, 1965-present
Formats: 35mm, 16mm, Betacam, video
Licensing: Negotiable
Fee: Varies
Reader Service #168

Paramount Pictures

Stock Footage Library
5555 Melrose Ave.
Hollywood, CA 90038
213.956.5510
213.956.1833 FAX
Content: Footage from Paramount TV and feature productions
Formats: 35mm
Licensing: World rights in perpetuity
Fee: Varies
Reader Service #169

Prairie Pictures

Box 122020
Arlington, TX 76012
817.276.9500
817.276.9500 FAX
73124.1052@compuserve.com
Content: Storm footage
Formats: Beta SP, D1, D2, Digital Betacam
Licensing: Negotiable
Fee: Varies
Reader Service #170

Preview Media

747 Front St., 3rd Fl.
San Francisco, CA 94111
415.397.2494 ext. 291
415.421.4982 FAX
Content: International travel
Formats: D2, 1-inch, 3/4-inch, Beta SP
Licensing: one-time buy-out
Fee: \$30/sec., 10 sec. minimum plus \$100 assembly
Reader Service #171

Producer's Library Service

1501 N. Cole Ave.
Hollywood, CA 90038
213.465.0572
213.465.1671 FAX
Content: Historical and contemporary popular culture
Formats: 16mm, 35mm, video, Betacam, 1-inch, D2
Licensing: Negotiable
Fee: Varies
Reader Service #172

Reuters Television International

3000 W. Alameda, Ste. 2907
Burbank, CA 92523
818.840.2958
818.840.4693 FAX
Content: News from 1896 to present
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #173

Roland Collection of Films on Art

Peasmarsh
East Sussex
England TN31 6XJ
44.1797.230421
44.1797.230677 FAX
Content: Paintings, sculpture, drawings, architecture from prehistoric times to present
Formats: 35mm, 16mm, Super 16mm, 1-inch, Beta SP, VHS
Licensing: Negotiable
Fee: Varies
Reader Service #174

Ron Sawade Cinematography

Box 1310
Pismo Beach, CA 93448
805.481.0586
805.481.9752 FAX
Content: Scenics, skies, animals
Formats: Any tape format, 35mm, D1
Licensing: 1 year
Fee: Varies
Reader Service #175

Science Footage

29 Bridge St., Hitchin
Hertfordshire SG5 2DF

United Kingdom
44.1462.421.1110
44.1462.421.092 FAX

Content: Natural history, science, medicine, technology, time lapse
Formats: Beta SP, Mill, BVU
Licensing: Copyright held on all material
Fee: Varies
Reader Service #176

Sea Photo Film and Tape Library

9520 El Granito Ave.
La Mesa, CA 91941
619.466.2002
619.460.4130 FAX
Content: Underwater
Formats: 16mm, Beta SP, 3/4-inch, 1-inch
Licensing: Negotiable
Fee: Varies
Reader Service #177

Sea Studios

810 Cannery Row
Monterey, CA 93940
408.649.5152
408.649.1380 FAX
73052.1020@compuserve.com
Content: Marine and terrestrial environments
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #178

SFRS (Service du Film de Recherche Scientifique)

96, bd Raspail
75272 Paris Cedex 06
France
33.1.42.22.46.44
33.1.42.22.93.50 FAX
Content: Science
Formats: 35mm, 16mm, all video formats
Licensing: Negotiable
Fee: Varies
Reader Service #179

SF.V International

11219 Bloomington Dr.
Tampa, FL 33635
813.884.5963
813.888.6713 FAX
Content: Variety, vintage and contemporary
Formats: All
Licensing: In perpetuity per project
Fee: Varies
Reader Service #180

Sharkbait Pictures

Box 3263
Kailua-Kona, HI 96745
808.325.6327
808.325.6979 FAX
Content: Volcanic activity, marine life, tropics
Formats: D2, 1-inch, Beta SP, 3/4-inch
Licensing: Negotiable
Fee: Varies
Reader Service #181

Spectral News Archives

178 S. Victory Blvd.
Burbank, CA 91502
818.840.0111
818.840.5694 FAX
Content: Celebrity news footage and Los Angeles establishing shots
Formats: Betacam, D2
Licensing: Negotiable
Fee: Varies
Reader Service #182

Sports' Cinematography Group

73 Market St.
Venice, CA 90291
310.785.9100
310.396.7423 FAX
Content: Sports — extreme, mountain, water, motor
Formats: 1-inch tape, D1, D2, Beta SP
Licensing: Negotiable

Fee: Varies
Reader Service #183

Stock Footage Connection

7321 W. Breen St.
Niles, IL 60714
312.794.1125
312.794.1178 FAX
Content: America, Hollywood, newsreels, 1890s to 1980s
Formats: Beta SP, 1-inch, 3/4-inch, 3/4-inch SP
Licensing: Negotiable
Fee: \$25/sec. to \$40/sec., 10 sec. minimum
Reader Service #184

Stock Video

1029 Chestnut St.
Newton, MA 02164
617.332.9975
617.332.9962 FAX
Content: Variety
Formats: Beta, Beta SP, D2, 3/4-inch, 1-inch, CD-ROM (12-volume set)
Licensing: Negotiable
Fee: Varies
Reader Service #185

Streamline Archives

432 Park Ave. S.
New York, NY 10016
212.696.2616
212.696.0021 FAX
Content: Variety, 1890s to 1990s
Formats: All
Licensing: Negotiable
Fee: \$30/sec. to \$40/sec.
Reader Service #186

TimeSteps Productions

2 Glenside
West Orange, NJ 07052
201.669.1930
201.731.8546 FAX
Content: Variety, black and white [some color] scenes from 1895 to 1959
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #187

Travelview International

10370 Richmond, Ste. 550
Houston, TX 77042
713.975.7077
713.975.0331 FAX
Content: Travel
Formats: Betacam, 3/4-inch, D2, VHS
Licensing: Negotiable
Fee: Varies
Reader Service #188

Tropical Visions Video

62 Halaulani Pl.
Hilo, HI 96720
808.935.5557
808.935.0066 FAX
Content: Kilauea volcano activity, 1985 to present
Formats: 1-inch, Beta SP, 3/4-inch, VHS
Licensing: Negotiable
Fee: \$1,000/min. to \$1,500/min.
Reader Service #189

UCLA Film and Television Archive

Commercial Services
1015 N. Cahuenga Blvd.
Hollywood, CA 90038
213.466.8559
213.461.6317 FAX
Content: Hearst Newsreel Library (late 1800s to 1970s), local TV news (1960s to 1970s)
Formats: All
Licensing: Negotiable
Fee: Varies
Reader Service #190

Universal Studios Film Library

100 Universal City Plaza
Bldg. 99, 2nd Fl.
Universal City, CA 91608
818.777.1695
818.733.0763 FAX
Content: Footage from Universal Studios TV and feature films
Formats: 35mm
Licensing: Negotiable
Fee: \$50 per foot, 10 foot minimum per cut
Reader Service #191

The Video Library

1465 Northside Dr., Ste. 110
Atlanta, GA 30318
404.355.5800
404.350.9823 FAX
Content: Variety
Formats: D2, Beta SP, Digital Betacam, 1-inch, 3/4-inch
Licensing: Negotiable
Fee: Starts at \$150 per shot
Reader Service #192

Video Tape Library

1509 N. Crescent Heights Blvd., Ste. 2
Los Angeles, CA 90046
213.656.4330
213.656.8746 FAX
vjl@earthlink.net
Content: Variety
Formats: Betacam, Beta SP, 3/4-inch, 1-inch, D1, D2
Licensing: Negotiable
Fee: \$32/sec. to \$75/sec., 10 sec. overall minimum
Reader Service #193

VideoLab

Box 2012
Del Mar, CA 92014
619.481.7283
619.481.7283 FAX
Content: Extreme and action sports, scenics
Formats: Betacam, VHS, 3/4-inch, D1, D2, D3
Licensing: Negotiable
Fee: Varies
Reader Service #194

WGBH

125 Western Ave.
Boston, MA 02134
617.492.3079
617.783.4243 FAX
frc@wgbh.org
Content: Footage from educational TV productions [science, locations, aerials, etc.]
Formats: VHS, 3/4-inch, 1-inch, 16mm, 35mm, Beta SP, etc.
Licensing: Negotiable
Fee: \$5/sec. to \$40/sec., 30 sec. minimum
Reader Service #195

White Rain Films

111 S. Lander, Ste. 301
Seattle, WA 98134
206.682.5417
206.682.3038
Content: Travel, location
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6) Which operating system do you use, use as a development environment, and/or target for the software you develop? (check all that apply):

Use	Use for Development	Target for Development	Operating System
01 <input type="checkbox"/>	21 <input type="checkbox"/>	41 <input type="checkbox"/>	OS/2 v.2.x
02 <input type="checkbox"/>	22 <input type="checkbox"/>	42 <input type="checkbox"/>	OS/2 v.1.x
03 <input type="checkbox"/>	23 <input type="checkbox"/>	43 <input type="checkbox"/>	Unix (AIX/XENDIX/AUX or any type of Unix)
04 <input type="checkbox"/>	24 <input type="checkbox"/>	44 <input type="checkbox"/>	MS-DOS/PC-DOS
05 <input type="checkbox"/>	25 <input type="checkbox"/>	45 <input type="checkbox"/>	Windows 3.x
06 <input type="checkbox"/>	26 <input type="checkbox"/>	46 <input type="checkbox"/>	Windows NT
07 <input type="checkbox"/>	27 <input type="checkbox"/>	47 <input type="checkbox"/>	SQL Server
08 <input type="checkbox"/>	28 <input type="checkbox"/>	48 <input type="checkbox"/>	Apple System 7
09 <input type="checkbox"/>	29 <input type="checkbox"/>	49 <input type="checkbox"/>	Other Macintosh OS
10 <input type="checkbox"/>	30 <input type="checkbox"/>	50 <input type="checkbox"/>	OS/2 Warp
11 <input type="checkbox"/>	31 <input type="checkbox"/>	51 <input type="checkbox"/>	OS/2 for Windows
12 <input type="checkbox"/>	32 <input type="checkbox"/>	52 <input type="checkbox"/>	Windows 95
13 <input type="checkbox"/>	33 <input type="checkbox"/>	53 <input type="checkbox"/>	OS/9
19 <input type="checkbox"/>	39 <input type="checkbox"/>	59 <input type="checkbox"/>	Other (please specify) _____
20 <input type="checkbox"/>	40 <input type="checkbox"/>	60 <input type="checkbox"/>	None of the above

18) Are you developing for, or supporting Lotus Notes?

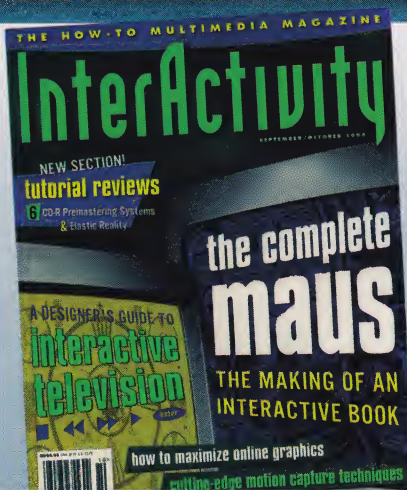
- 1 ☐ Yes 2 ☐ No

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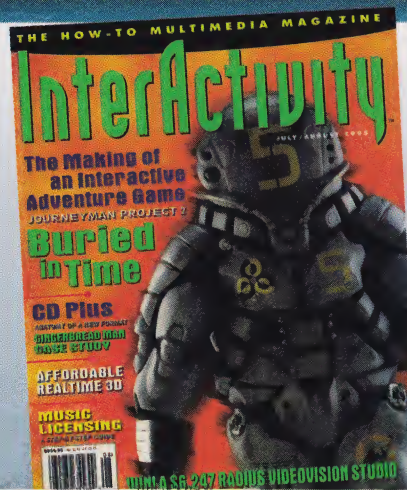
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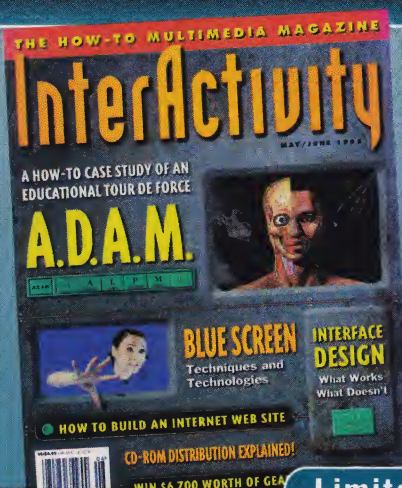
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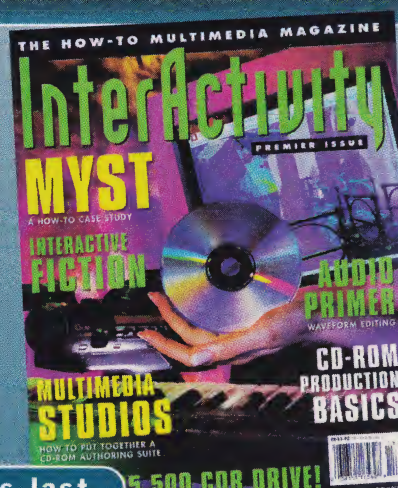
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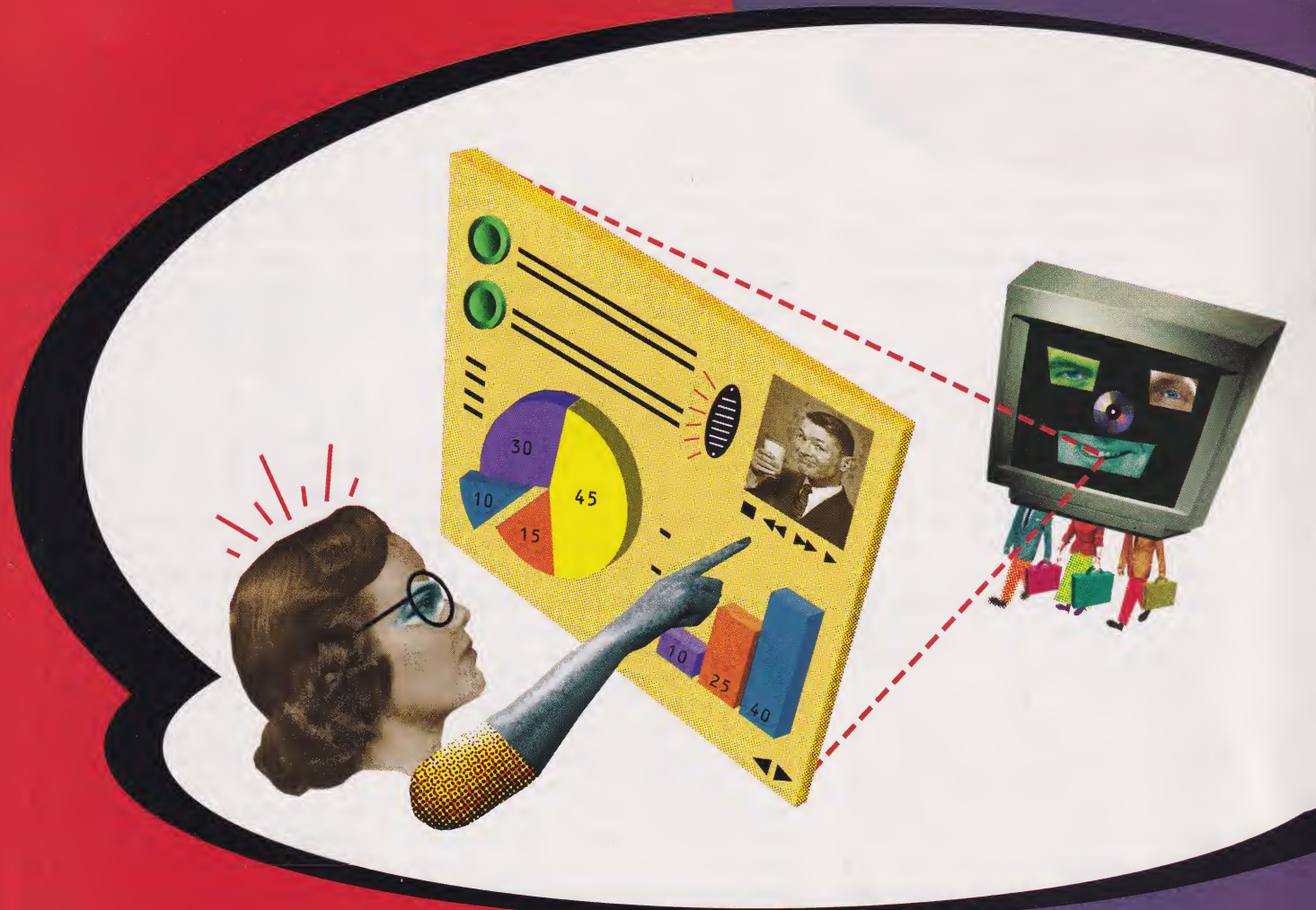
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IAB5



interactive presentations

How to Use Interactive Media Tools to Communicate Business Messages for Fun and Profit

By Erica Smith

Once upon a time, the media kit was a bunch of photocopied press releases, product literature, and propaganda aimed at promoting products and services to prospective clients, the press, consumers, and anyone else whose brain needed washing. For the visionary marketeer, the multimedia version was either transparencies on an overhead projector (yawn) or, for the truly high-tech adventurer, it was a slide show version of the aforementioned black-type-on-acetate transparencies. In color, if you had time on your hands or the luxury of an art department. ■ As for the interactive version, hey, in those days there was a real live person there giving a presentation, wasn't there? How much more interactive could you want? ■ With the advent of affordable, desktop interactive media authoring tools, business presentations may never be the same. Those bulky old overhead projectors and wilted handouts are being replaced by interactive media presentations that might start as a slide

interactive presentations

show delivered on the LCD of a PowerBook or a ThinkPad and end as a floppy disk- or CD-ROM-based handout, bringing together graphics, audio, and text in a cyberspace marriage that's both dynamic and utilitarian.

The interactive multimedia kit is clearly a marketing tool whose time has come, but is it too much too soon? Do prospective end users have the technical savvy to run complicated presentations? In certain industries, especially high-tech, it's a perfect fit — the target audience is already familiar with the gear, they've got the requisite tools, and they're more inclined to embrace new formats. But what about less techy branches of industry, or, heaven forbid, those determined Luddites who still think a "hard drive" means a Chevy pickup with a flat tire? How can we as developers bridge the gap? Let's take a look at the issues, both conceptual and technical. . . .

Ideally, interactive media kits should encompass the needs of both technocrat and Luddite. The main function of media kits, according to entrepreneur and designer Mike Kuehl, is to "distribute information to customers in a way that allows them to access and be productive with that information." CD-ROM-based product guides, annual reports on floppy disk, hard disk-based sales presentations, interactive kiosks, and uploaded Web files all loosely fit the description of an interactive media kit. But unlike many other interactive applications, business presentations are unique because they require a very specific focus, are limited to a set amount of viewing time, and rise or fall based on their ability to cogently communicate the merits of their subject.

Kuehl's approach to development is infectious and inspiring, maybe even reckless, but he wouldn't have it any other way. "Anything can be done," laughs Kuehl, a former marketing manager in the publishing industry who began a new career in the process of trying to create innovative sales and marketing strategies. "I started using Macro-media Director when version 4.0 came out," he recalls. "I recognized that it offered a way to distribute information to customers in a self-paced, productive way. It turned on the light bulb for me. It's one thing to simply hand customers information, and it's another thing for them to actually do something with it."

Kuehl's revelation materialized in the form of an interactive, floppy disk-based sales kit for M&T International, a division of *InterActivity's* sister high-tech publishing unit. The success of his first project led Kuehl to concentrate his career on the design of what he half-facetiously calls "stand-alone floppy disk-based proprietary software," eventually carving his own specialized niche within a highly competitive, rapidly evolving field.

For M&T, Kuehl created a streamlined, easily navigated sales kit. Welding software and spreadsheets as his tools of choice, he shoehorned display advertising rate information for 80 international publications into a virtual 3D three-ring notebook. The kit is intended to give ad agency media planners the power to choose and coordinate where their clients advertise. According to Kuehl, his interactive kits allow media planners "to adjust the amount of advertising insertions going into any individual magazine, to change the frequency of insertion, and finally, to create an entire media plan without having to break out a pencil and calculator."

Interactive media kits sound deceptively easy to create, but don't be fooled. Behind the scenes, a relatively simple sounding media kit can take

months of exhaustive experimentation and tweaking in a collaborative effort between marketing executives and programmers. Kuehl took on the rigorous challenge of both roles, and he admits to picking his way through a minefield of design errors to produce his first project. His initial concept was to construct an atlas-style map users could navigate through to get information on the publishing possibilities in various international markets. But the idea proved difficult to execute and less than user-friendly.

Eventually, Kuehl arrived at the idea of a notebook format — an obvious choice perhaps, but fitting for the task at hand. "Everyone knows how to use a notebook," says Kuehl, who suggests that the notebook metaphor is the core of his sales kit largely because of its familiarity of form. "There are tabs down the side much like a loose-leaf notebook," he observes. "There's a remote control panel on the left where the rings would be with labeled control buttons."

Certainly an intuitive interface and a straightforward graphic presentation are useful design criteria, but Kuehl also aims to *engage* the user. Whether the hook device is blinking lights, colors, or graphic objects, he suggests always keeping active elements alive while the sales kit is running, which has the extra purpose of dissolving the fear that the computer may be stalling, frozen, or crashed. "To have the sense that your media kit is always *happening*—that's cool," Kuehl explains. The active mode of presentation is comforting to technophobes and quells the fear of a user who thinks they've done something wrong.

Realizing that corporate media planners who use the kits might want to copy text into their own media plans, Kuehl built a text manipulation tool into the program that allows users to cut and paste directly from the presentation. "You want to write specific pieces of information that essentially encourage the media buyers to clip them into their media plan," says Kuehl. "From a floppy disk-based presentation, you can open your word processor, take chunks of text, and drop them straight into a document."

Kuehl's design also incorporates a search engine flexible enough to search for editorial topics or to change figures for the frequency of potential ad insertions. And calculations are built in that allow the benefits of frequency discounts to be assessed. To create these tools, Kuehl exploited Lingo, Director's scripting language. "The search tool is code driven," he explains. "Lingo allows you to create events that enable you to experiment with the media kit's functionality. Inevitably, you'll be able to execute an event on a whim."

Understanding the needs and capabilities of the kit's potential audience is essential. But as Kathy Kozel, a professor of Multimedia Studies at UCLA and programmer of the interactive CD-ROM-based press kit for the movie version of *Casper*, suggests, so are the goals of the kit's producers and the service providers it represents. Kozel routinely asks her students to answer this

Mike Kuehl's interactive media kit for M&T International shoehorns display advertising rate information for 80 publications into a virtual three-ring binder.

MAGAZINE	FREQ	SIZE	RATE	INS	TOTAL
SelezElett/ItaI	3X	4C cover 3	3203	3	9609
PC User/UK	12X	Spread	7819	12	93828
WindowsPlus/Fra	6X	4C, cover 4	9540	6	57240
Nikkei Byte/Jpn	6X	4C, full pg	10452	6	62712
Dr.Dobb's/Jpn	3X	4C, full pg	2076	3	6228
AustrPersComp	18X	2C, 2p spr	5262	18	94716
InforExame/Brazil	10X	2C, 2/3 pg	10310	10	103100
CompuMag/Arg	1X	4C, 1/2 pg	2760	1	2760
Eletr.Prof/ItaI	6X	4C cover 2	2360	6	14160

444353

bids and budgets

Diving into developing the interactive

media kit is one thing, figuring out that small question of money is another. No one wants to feel shortchanged. You've got to be paid for your time, creative energy, and resources. It's time to make a proposal.

Developers uniformly assume that most companies want to receive a bid with an estimated budget for any project, and they're generally correct. Pegging down the approximate number of hours you expect to spend on all stages of the project as well as the hourly fees for each type of labor involved sounds like a headache, but it's the only insurance you have against coming up short.

There are always small items in the margins that can't be charged out — time spent conceptualizing in the shower, for example — or entire stages that the client may not expect, such as packaging and manufacturing. This last post-production process can sometimes end up costing just as much as the development stage, and the client's jaw may fall to the floor when presented with *that* bill.

Being honest and up front is generally the best policy at all times. Winning a bid by staggering the fees of one stage of development into other stages can be dangerous. One developer did just that, planning to stagger fees from the development stage of a sales kit into the production stage. His bluff was called when he was hired only for the development. And he never recovered his full fee.

Although there are some vague notions of computer and design industry standards, a highend high-tech company commands highend prices. Clients will pay more for the services of a larger, more established firm that will presumably deliver a top quality, polished end product. Smaller companies have to assemble their budgets carefully and get by on a shoestring until they make a name for themselves. Experience with budgets streamlines the estimate process and the risks are fewer.

basic question when approaching any project: What is supposed to happen? Stressing that designers must understand the user's motivating, underlying needs — and how that translates into advantage for the client — Kozel explains the answer to the key question as a "behavioral goal. Are they supposed to pick up the phone, buy this product — as in the case of *Casper* — and tell all their friends to make sure to see this movie? If that's the underlying motive, then the design of the interactive program must support that purpose specifically."

A solid thematic and sequential foundation is key to developing a successful presentation. Flow charts or storyboards that map out the interface design and the sequence of the content are often the first steps. "The hardest thing is trying to decide how you are going to deliver all that information," Kuehl agrees. "Interface design is king. The graphics treatment is important, but more important is the overall design, figuring out a way to use a minimal amount of space while creating the impression of a full, rich presentation."

Storyboarding involves sketching out planned animation or graphics before programming begins. A storyboard may be a simple bare-bones pen-and-ink illustration or a much more elaborate

project plan — appropriate for formats such as CD-ROM that hold many times the amount of information available on a floppy. Kozel's *Casper* CD-ROM press kit began with careful attention to detail. Kozel drew herself a flow chart to outline her direction during the early programming stage of the project — the beginning of a harrowing *four week* timeline.


Self-taught on Macromedia Director 4.0, Kuehl uses the application as his primary shell for authoring, citing its exemplary animation ability and its versatility. "Moving from frame to frame within the Stage creates the impression of going from slide to slide. You can incorporate different code-driven features. And with Lingo, you have the tools you need to emulate highend software." Although he relies heavily on Director, Kuehl has also used Adobe Acrobat, but feels "Acrobat is limiting in comparison, though there's a certain level of acceptance for it in the high-tech industry. PowerPoint is another option. It has many powerful features. You can play back video within the program or interface with other applications. My clients have toyed with the idea of doing an elaborate PowerPoint presentation, but neither PowerPoint nor Acrobat compares to Director in terms of flexibility."

If you've already designed several media kits, you may have a template with elements such as icons that can be recycled. Thus, the client sees less billing hours and a smaller budget. You get to see a bigger profit margin. (But don't share this proprietary information.)

From the outset, be clear on what your client expects to have delivered, whether it be a beta version of a media kit or the whole enchilada — 8,000 floppy disks. Miscommunication can result in big disagreements later, so consider drawing up a contract that specifically outlines these expectations. A budget should take into account licenses paid for someone else's software, rights to playback engines in authoring systems (often included when purchasing an authoring system, but it's a good idea to check), and purchases of audio and visual clip media.

The contract between client and you can be for a "work for hire," usually pertaining to independent contractors. This gives the client source and programming codes to any work you do. Be on the lookout for any mention of those words. Generally speaking, it is to your advantage to retain rights to programming done for a media kit. Otherwise it can't be reused for any other project, but that's another story in and of itself.

Let's get down to the nitty gritty. How much are people charging for their services and what's reasonable? A medium-sized company can charge between \$80 and \$120 an hour. A CD-ROM press kit could cost anywhere from a conservative \$10,000 to a high of \$90,000 or more.

A floppy disk can be produced for around \$8,000, including all the disks. The *Casper* CD-ROM press kit budget came in around \$60,000 — not including the pressing of the disks — and was completed in four to six weeks. What your client can afford will make all the difference. 

Kuehl currently uses a cross-platform version of Director with Lingo, Fractal Design's Painter for graphics, Adobe Illustrator for illustrations, and Photoshop for dithering the graphics, creating the right file formats, and compressing them. He runs his software on a Macintosh Quadra AV with 16MB of RAM.

Once an interactive media kit is on the streets, the format it's delivered in becomes as major a factor as its interface and design. Kuehl warns that floppy-based presentations can be limiting: "One of the biggest challenges in developing interactive presentations is that the more complex a presentation, the slower it runs." Memory management can become an overriding issue. Consider exactly how many sound and graphics files can be included and how big they can be without overwhelming the end users' computers. A floppy can hold only 1.4MB; when a program is designed in Director, it requires 300k to 600k for playback alone.

David Watkinson of Main Street Media, who is often called upon to create electronic media kits for Hollywood films, shares two tricks for shoe-horning QuickTime movies into productions where disk space is at a premium. The first involves turning a QuickTime file into a series of

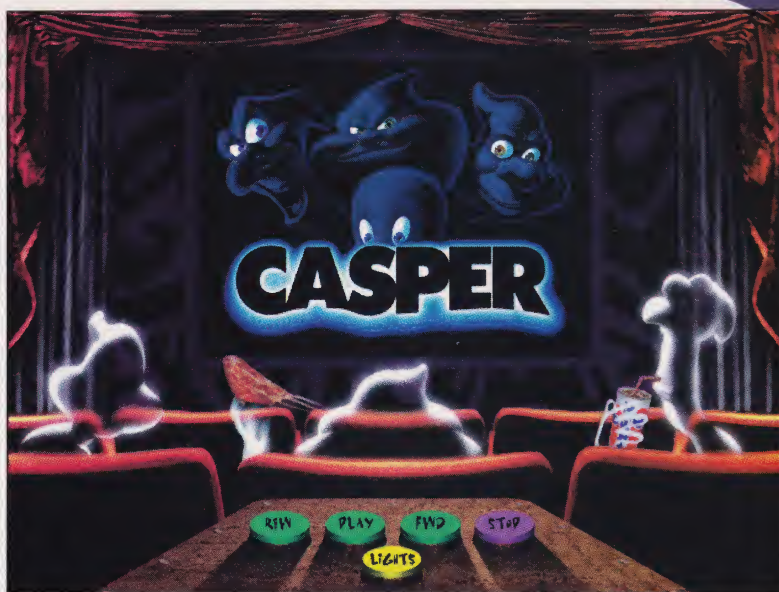
interactive presentations

postage-stamp sized frames, then displaying them in sequence to re-create the movie. This is most useful in situations where retaining color is more important than the size of the viewing window. "In Premiere," he says, "you can export the individual frames as small .PCT files and import them into Director [to reassemble the video]. But you have to make them really tiny if they're 8-bit color" or else you won't save much space.

The other trick takes advantage of the fact that black-and-white images don't take up much space at all and that you can colorize them in Director. Watkinson uses Premiere to export a QuickTime clip as a Photoshop filmstrip and in Photoshop converts the filmstrip into a set of 1-bit black-and-white images. Things get tricky here, since Photoshop loses critical information about the filmstrip during this conversion. This information can be retained, Watkinson advises, using Photoshop's channel facility. After the black-and-white conversion, he reapplies the channel information and imports the filmstrip back into Premiere. From Premiere, the clip can be exported as a series of .PCT files and reassembled in Director. "Once you port it into Director," he says, "you can color it on the Stage" to give the clip up to two colors without increasing the file size.

Remember to test your program *while* developing it, not after. And keep testing it during its various phases. Kozel advises her students to use both a Mac and a PC while testing, even if they have to borrow another machine. "You can't just develop your project on one machine and in the

Casper was designed with the audience in mind. Identifying the underlying motive of the media kit before designing it is critical to the success of the project.



BIT & Associates

end do final testing on the other machine. That's a bad strategy. It's safer to build your media kit in Director on the PC, because if it works on the PC, it's pretty much guaranteed to work on the Mac. But it doesn't always work in reverse."

The lowest-common-denominator machine may also be the safest bet. It's impossible to predict what equipment your floppy will end up on. If the memory of the end user's machine is at the low end, and you've designed in audio or video somewhere on the highend, the graphics and sound probably won't match up. Perhaps a function of the search engine may be more frustrating than it's worth. Arno Harris, a multimedia producer for the Novo Media Group, offers this suggestion to create animation effects without taxing the user's

CPU: "You can use sprite animation and a single bitmap of a character. If you want to have four or five different frames of that character, you can get a lot of movement and what feels like video by moving nothing around the screen and moving through the different cells."

When the time comes to present your media kit, hope for the best, but expect the worst. When Kozel met with her clients in Japan to present the *Casper* CD-ROM press kit, she came to the shocking realization that no one there knew how to plug her PowerBook into a full-size monitor, resulting in a cluster of perturbed businessmen crowding around her tiny computer screen. "Even the most perfectly planned project can go haywire," she advises. "Plan accordingly."

Handy Dandy Tips on Choosing an Authoring Tool for Your Interactive Media Kit Extravaganza

You've decided it's time to do your own media kit.

You're about to plunk down some cold, hard cash, but what authoring system should you invest in? Actually, a number of questions should precede this one — questions such as: Who will be using this disk? Do I want to learn a new programming language? How important will sound be?

Rather than reprint a gazillion-page list of authoring systems here — we did that in our first issue, if you want a copy, it's available as a back issue for \$9 — we thought we'd present an overview of some of the issues you'll want to keep in mind. . . .

Cross-platform compatibility. It can't be stressed enough. It's essential to be able to create for both Windows and Mac platforms, and advantageous to be able to run your kit online.

Flexibility. The system will control how much your media kit can do. Some authoring systems will allow you to install more functions and features. Keep in mind, the end user has no investment in your kit or your tools; they just want to be informed.

Precision. Your end product needs to run smoothly and your authoring system should ensure that all the graphics, sound, and music will begin and end at the right moment.

Multitasking. Accommodating other types of software into the system gives it more power and adaptability.

The player or runtime engine should require little memory and will tell you explicitly how much space it will use. The less, the better, especially in the case of floppy disk-based presentations.

Ease of use versus complexity and versatility. The decision is yours. It depends on your experience. The uninitiated will more likely choose a highly structured system while programmers will want a system that's more complex and versatile.

A built-in scripting language, such as Director's Lingo or Quest's C++ Coach, can be a godsend or a quagmire. On the one hand, it can enable all sorts of fancy, nonstandard interactivity. On the other, all that interactivity can eat up more development time and disk space than you have available. Scale your ambitions to your real-world limitations.



INTERACTIVE POWER TOOL

QUEST 5.0 FOR WINDOWS FROM ALLEN COMMUNICATION

B Y B R I A N P R O F F I T

Introduced 11 years ago, Quest qualifies as one of the granddaddies of interactive authoring tools. So far, its fine reputation among developers has been based on versions that run on MS-DOS. With version 5.0, Quest's extensive capabilities are available to Windows users. (Allen says they've been running Quest 5.0 under Windows 95 since October 1995, and that it actually runs more smoothly that way. A native Win95 version is due in spring 1996.) The current version has been redesigned from the ground up, retaining the original's "frame" metaphor while adding major capabilities and a powerful object-oriented user interface.

I hesitate to use the term object-oriented because, in my experience, it scares away non-programmers. Nonetheless, that's what Quest 5.0 is — and elegantly so, offering many benefits of object orientation without forcing you into the complexity that often comes with object-oriented development environments. The price tag (nearly \$4,000) marks this as a professional system, but then so does the sophisticated user interface. It hides a tremendous amount of power behind a simple, straightforward tool set.

Moving from DOS to Windows makes sense for a few reasons. The world's millions of Win-

dows users benefit from a gentler learning curve, and Allen doesn't need to devote a lot of documentation to the standard windowing aspects of the product. Windows helps with integrating multimedia, and the Windows clipboard makes cut-and-paste operations go more smoothly.

To Allen's credit, Quest feels like a Windows program rather than a DOS program in a window. Your projects will, too, if you take advantage of standard Windows controls like buttons and scroll bars. In fact, using the Menu Editor utility, you can create your own menu bar to make any project indistinguishable from an actual Windows application. And when it's finished, Quest's Release utility packages it for you. It compresses the files, removes debugging hooks used during the authoring process, and writes diskettes complete with an installation program, making your work ready for distribution.

Designing Titles

In Quest lingo, a project is called a *title*. Titles are composed of *frames*, or pages, each of which generally (but not necessarily) presents a single interaction: a question to be answered, an empty text box to be filled in, an animated object to be clicked upon, a video clip to be viewed. A frame

contains any number of *objects*: text, graphics, animation, video, audio, buttons, scroll bars, and so on. Commands that control the title's actions, such as a command to wait for the user to click on a particular object, are also considered objects in the frame. Very generally, a title communicates with objects via *object services* (as in, "Object, perform this service"). Objects communicate with a title via *events* ("Title, look for this event").

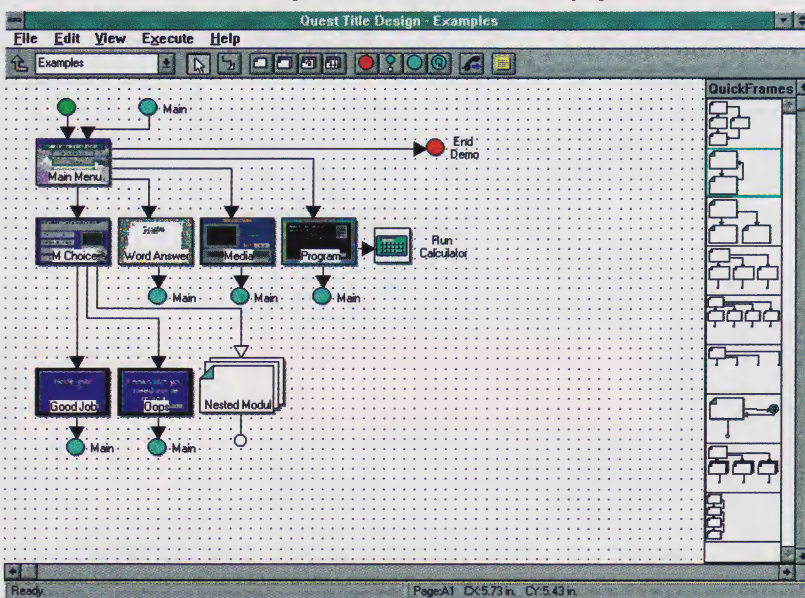
Upon booting, Quest presents the *Title Design* window (Fig. 1), where you create an overview of your title's frames and the interconnections between them. Generic empty frames, which appear as box icons, are positioned and connected as though you were drawing a flowchart. Lines and arrows indicate the user's path through the title. The *QuickFrames* feature simplifies this by providing a library of groups of empty frames, conveniently arranged, connected, and ready for copying into your own titles. When you reach the point in the authoring process that you're building individual frames, the connections created here will appear in a list when you invoke the *BRANCH TO...* command.

Although the Title Design diagram in Fig. 1 fits within an 8.5x11-inch page, horizontal and vertical scroll bars enable diagrams to extend up to 10 pages wide and 10 pages high *per layer of your design* (see the discussion of modules below). If scrolling around becomes inconvenient, you can zoom out to view more frames at once.

To make designs more manageable, frames may be grouped into *modules*, each of which handles an individual function or related group of functions. Initially, a module appears as a stack-of-frames icon (Fig. 2). Double-clicking on this icon takes you to the next design layer, revealing the individual frames and connections that make up the module. Modules can be nested, so a design may have any number of layers. Navigating among them is easy thanks to a hierarchical menu located in the Title Design window's tool palette (where tools for creating various kinds of modules reside). In fact, Fig. 1 actually represents a module named "Examples," part of a title called "Interact." Fig. 2 represents the top layer of the design.

As you create increasingly complex titles, the lines between frames come to resemble an abstract rendering of spaghetti. AUTOMATIC PATH ROUTING (in the *PREFERENCES* menu) creates more legible title designs by automatically generating 90-degree turns in path lines. An even better way to eliminate

Figure 1. Quest's Title Design window. Here you can build an overview of your title's frames and the interconnections between them. Boxes are generic empty frames; lines and arrows indicate the user's path through the title. Note the horizontal and vertical scroll bars and the QuickFrames window at right. Blue dots are on- and off-page connectors.



clutter is to use *on-* and *off-page connectors* (the blue dots in Fig. 1). An on-page connector simply points to a specific frame, while off-page connectors point to a particular on-page connector. This provides a tidy way of creating multiple paths to a single destination. On- and off-page connectors can only be used within a single design layer.

Call modules add another level of flexibility. A call module has no specific entry or exit paths, but can be reached from its own or any lower layer via a *call module connector*. That is, if you place a call module in the top layer of the Title Design diagram, it can be called from anywhere at any time. This might be useful for, say, a glossary that must be reachable from many locations.

Similarly, your title can call any Windows program via the *call program* function. Clicking on a button, for instance, might open the Windows calculator (as indicated on the right-hand side of Fig. 1); upon exiting, you return to the Quest title wherever you left off.

One of Quest 5.0's slickest tricks is the ability to create *concurrent modules*. Frames in a concurrent module run simultaneously with other frames. Among other things, this is useful for overlaying controls that appear in every frame. It's tempting to use this feature for more demanding applications, such as a soundtrack that plays continuously. This is possible, but Quest is subject to the limitations of Windows. As a title changes from frame to frame, the workload occasionally becomes severe enough to cause problems — in our test, a temporary loss of audio coming from a CD. This is enough to make one hope that Allen will release a version of Quest for OS/2 or Windows NT to take advantage of multitasking.

Editing Frames

Double-clicking on any frame in the Title Design diagram brings you to the *Frame Edit* view (Fig. 3). This is where the frame's properties, contents, and behaviors are specified.

Tools for further defining and filling frames reside in three small windows labeled *FRAME EDIT*, *ATTRIBUTES*, and *FASTTRACKS*. Together they take up a fair amount of screen real estate. Unless you develop your titles on a system with higher video resolution than your users will have, you'll need to hide and restore them frequently (accomplished easily via the F2 key). Fig. 3 depicts a 640x480 frame being developed on an 800x600 system, enabling these windows to be kept largely in the margins.

While you're editing a frame, the *FRAME* menu offers options for creating a new frame (*NEW...*) or going directly to others within the same design layer (*OPEN...*). To work on a frame in a different module or layer, you must zoom out to the Title Design level (*CLOSE* in the *FRAME* menu), navigate the hierarchical menu, and double-click on the desired frame — a cumbersome hitch in Quest's otherwise elegant interface.

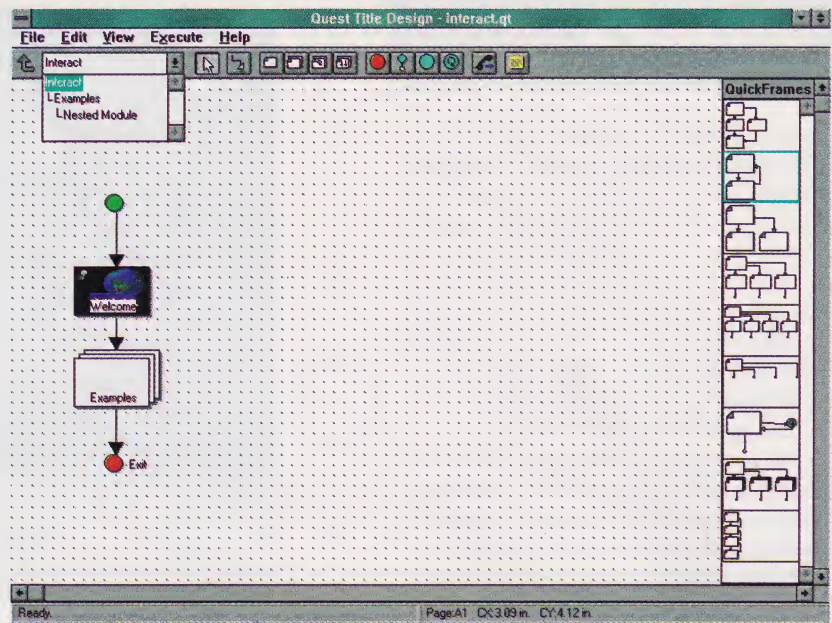


Figure 2. A module appears as a stack-of-frames icon at the top level of the design. Double-clicking on this icon takes you to the next design layer, revealing the individual frames and connections that make up the module. Navigating among layers is easy using the hierarchical menu.

The *FRAME PROPERTIES* dialog, available from the *FRAME* menu, includes options for defining the current frame as a *pop-up window* or a *child window*. Pop-up windows float above other windows without necessarily being associated with any of them; this is the familiar model for a Windows application. A child window, on the other hand, opens out of and closes into its "parent" window.

Pop-up and child windows offer options for size, border, title bar, minimize/maximize button, horizontal and vertical scroll bars, and so on.

Creating Content

The *FRAME EDIT* window is the heart of the system and makes creating titles largely a matter of pointing and clicking. To fill a frame with content,

UPDATES NIPPING AT OUR HEELS

By the time you read this, Allen expects to be shipping Quest 5.1. The update promises a number of new features and enhancements, including:

- Integration of FastTracks and QuickFrames. Both will be available in the Title Design view.
- Support for RTF (Rich Text Format) text files, enabling text objects to hold multiple type colors, styles, fonts, and sizes. RTF text can be imported as well as cut, copied, and pasted.
- Support for over 24 additional bitmap formats, including PCX, GIF, TIFF, TGA, PCT, JPEG, RAS, MSP, ICOA, CAL, DCX, EPS, IMG, CUT, IFF, ICA, LV, MAC, PSD, PCD, XPM, XBM, BM.
- Hypertext simulation via support for Windows HLP (help) files.
- Enhanced text input analysis, making it easier to handle non-exact user input.
- Enhanced grouping to deal with pasting multiple copies of a group into a single frame and performing services on multiple copies of a group.
- Tracking and viewing of variable values while debugging.
- Grouping/ungrouping and compressing/decompressing of objects directly from the object list using the mouse.
- ASCII pasting to the object list from the clipboard, exporting of the object list to a separate ASCII file.
- Nine new services for manipulating text objects.

—Ted Greenwald

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first you select a tool. Using the tool (say, the tool for drawing rectangles), you create an object (perhaps a square) and are prompted to name it via a dialog called OBJECT PROPERTIES, in which various basic attributes can be specified depending on the type of object. (OBJECT PROPERTIES can be reopened in various convenient ways if you want to alter parameters later.) If the object is a visual element, it appears in the frame surface and, simultaneously, its name and icon appear in a list of objects in the FRAME EDIT window.

You can select colors, fill patterns, line widths, fonts, type sizes, and type styles — and apply them to a graphic object at any time — using the ATTRIBUTES window. Forty-seven default or custom colors are available along with 100 line widths and five line styles (four dotted lines plus solid). Standard type style and justification options are available, but only one font, size, and style per text object (mixing and matching isn't supported in this version, but will be in version 5.1) and no imported text (again, version 5.1 will import RTF text files). Fill options include user-defined patterns, a smooth gradient between any two colors, and imported bitmap graphics. There are handy features for copying attributes from



Figure 3. The Frame Edit view, where an individual frame's properties, contents, and behaviors are specified. Tools for filling frames reside in windows labeled Frame Edit, Attributes, and FastTracks. In the Frame Edit window, icon-driven tool palettes are hidden beneath tabs marked Graphics, Animation, Audio/Video, Controls, and Interact. The object list is below.

one graphic object to another, and any combination of ATTRIBUTES settings can be defined as a style, which makes it easy to keep the look of your titles consistent throughout.

The FASTTRACKS window holds a library of objects or collections of objects to be used as templates. If you were designing a multiple-choice quiz, you might want a number of panels with background art, a header with the name of the quiz, a subtitle for the section of the quiz, a question at the top and four possible answers underneath. Rather than building the same structure for each question, you can build it once and save it to FASTTRACKS, copy it into each question frame, and modify the text as needed.

While you're working on a frame, you can jump into runtime mode by pressing CONTROL-R and exit to authoring mode via CONTROL-E. This makes it easy to check the results of your work at any moment and modify it immediately if it doesn't have the effect you want. In some cases, notably with combined animations, dissolves, and the like, this mode doesn't run so smoothly. If there's any doubt, you can run your title-in-progress from the Quest Player (a separate application), which gives you the next best approximation of a user's point of view. There's also a DEBUGGER menu option that steps through the object list one line at a time and informs you if errors are encountered.

The Object List

Items in the object list can be cut, copied, and pasted freely within and among frames. To make the list itself more manageable, selections in the

OBJECT menu are provided to collect objects into a GROUP (they collapse into a box icon with its own name) and to UNGROUP them again. Similarly, nested objects (such as objects that act upon other objects) can be grouped and ungrouped by selecting COMPRESS or EXPAND.

The object list determines the order in which things happen in the frame. For instance, if you draw a square, insert a command to wait ten seconds, and draw a circle, when the title runs the square will appear in the frame surface ten seconds before the circle. To alter an object's position in the order, simply drag its name to the desired place in the list.

Furthermore, the order of graphic objects in the list determines their position in the frame from front to back: Each appears on top of preceding objects in the list. Of course, this is critical when placing text over a background — you don't want the background to obscure the text — but you can also use it to create useful animation effects (Fig. 4). You might start with a background landscape, then add a dog walking through it, and then hot-air balloons floating by. As balloons float past the dog, it disappears behind them because the balloons follow it in the list.

Although you have the opportunity to name each object as you create it, by typing an additional name after an object's entry in the list, you transform it into a *live* object. Live objects (say, the square and the circle, now subtitled "live square" and "live circle") can be acted upon by other objects (such as animation paths to make them fly across the frame surface). A list of live objects appears automatically in the OBJECT PROPERTIES dialog

...PEANUTS AND A PRIZE

Nosing around the Quest CD pays off with Paint Shop Pro, an extremely useful shareware application that isn't mentioned in the documentation. It captures all or part of the screen, saving it in several popular formats. It also converts existing images among various formats. Where Paint Shop Pro really shines is in the variety of filters provided to manipulate images.

Paint Shop Pro is included for a reason. While Quest is excellent for putting together presentations, it's less capable for creating the graphics used in them. For anything beyond simple lines, rectangles, and ellipses, you'll be capturing and importing screens created using a full-featured graphics program. (The same is true of video clips. Professional developers will need a specialized video capture and editing program such as ATI's Video-IT!)

Take the time to get to know Paint Shop Pro. If you use it for more than 30 days, do the right thing and send in the \$69 registration fee. It's well worth the price. 🐾

—Brian Proffitt

of any object that can act upon other objects. Clicking in this list selects a live object to be acted upon.

Authoring Tools

Tools for creating objects are found in the Frame Edit window under buttons that look like file folder tabs labeled GRAPHICS, ANIMATION, AUDIO/VIDEO, CONTROLS, and INTERACT. Clicking on a tab reveals the associated icon-driven tool palette. Each tool's name appears when the cursor passes over its icon—a nice way of helping the novice without getting in the expert's way. (It can be defeated as you become more proficient with Quest.)

As you might expect, Quest's selection of text, graphics, and animation tools doesn't compete with specialized programs in those areas. The GRAPHICS palette, for instance, provides only the following familiar drawing tools: RECTANGLE, ELLIPSE, LINE, TEXT, and FILL. Keep in mind, though, that you can import graphics and animations created elsewhere. Nice libraries of clip art and sound effects are included for importing. (Since so many picture libraries are available, Allen's collection focuses on backgrounds.)

Once you have graphics, the ANIMATION palette makes it easy to bring them to life. Animating an object is as simple as selecting it and mouse-drawing a path for it to follow (using the PATH tool). You can define a square within which an object bounces, rebounding off the edges (the BOUNCE tool), or within which the user can drag the object (the DRAG tool). Further, an object can comprise a series of images that cycle with a specified order and rate (the CYCLE tool). Cycling several images of that dog with the legs in different positions can make it appear to run across the screen. The DISSOLVE tool offers nine styles for bringing a graphic or text object into view—helpfully, these can be previewed in the DISSOLVE dialog box—including zoom-in and sideways scroll (speed is selectable).

Quest's object-oriented architecture makes it easy to animate an animation. That is, you can cycle the legs of the dog while moving the dog itself (rather than the background). There are limits, however. Particularly when combining animations with zooms, our CPU couldn't keep up and the animations slowed noticeably while the zoom was in progress.

Adding audio and video is a snap using the AUDIO/VIDEO palette. It provides tools for incorporating audio and video files as well as playing back segments from audio CD and laser disc players (with the appropriate hardware and device drivers). To add audio, simply click and select the desired clip from the dialog that pops up; for video, you draw a square that defines the location and size of the viewing window and then select a clip. The Windows Media Player can be invoked to help you find what you're looking for. (Buttons and other playback controls are created using the

CONTROLS palette and assigned to clips using the INTERACT palette; see below.)

Whether the media resides in a file or on a disc, you can specify a segment's start and end points (to the millisecond) and whether it plays once, a number of times, or in an endless loop. You can also define events that prompt the title to perform a particular action at a specific millisecond during a clip. For instance, a graphic may pop up and the entire screen may dissolve coincident with an actor's closing line.

The CONTROLS palette offers BUTTON, SCROLL BAR, TEXT BOX, TIMER, and SMART SPOTS. Buttons can be of standard, check box, and radio types; use standard graphics, an imported bitmap, or be transparent; and can have 127 steps (which enable the button to cycle through various graphics and/or functions). Horizontal and vertical scroll bars can be associated with text, bitmaps, audio, video, and other objects. Through text boxes, users can enter their own text that then can be analyzed and used to trigger events, enabling your title to respond to specific words with specific actions. The timer (which counts up or down, visibly or invisibly, in hours, minutes, frames, and seconds) is handy for timing responses to test questions and can be used to trigger predefined events at specified time intervals.

Although buttons appear to be rectangular when you draw them, there's an easy way to tailor them to any shape. The trick is to import a bitmap depicting the shape desired and then, in the ATTRIBUTES window, define the color that borders the bitmap as the *transparent* color. This feature not only makes the border invisible, but removes its pixels functionally from the button as well.

The SMART SPOTS function provides a powerful alternative for defining sensitive screen areas. This is optimized for dividing a large area—say, a diagram or a photo—into a complex of hot spots. Smart Spots are defined using a separate application that enables you to draw and paint them, derive them from a bitmap file, and construct surfaces of overlapping spots (in which case the top-most Spot is active, which is useful for creating noncontiguous areas with identical interactive properties). Then, back in Quest, the SMART SPOTS tool assigns them to actions and events. For instance, you might create text that pops up whenever the cursor moves over a specific area. Alternatively, you might change the cursor's appearance over a spot. Unlike buttons, Smart Spots can't be animated.

The INTERACT palette offers tools that command Quest to respond to user input. WATCH FOR... and WAIT FOR... are among the most immediately useful. The former tells Quest to continue executing the object list while watching for some user action (specified in the OBJECT PROPERTIES dialog). This may be a manipulation of a live object, such as clicking on a button. Or it may be a pressed key, menu se-

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Description

Highend interactive multimedia authoring software for Windows.

System Requirements

Minimum for authoring: 486DX 33MHz, 8MB RAM, VGA graphics card, Windows 3.1, 11.4MB on hard disk. Recommended for authoring: 486DX 66MHz or better, 16MB RAM, SVGA graphics card, Windows 3.1, 13.9MB on hard disk. Minimum for runtime: 486SX 33MHz, 4MB RAM, VGA graphics card, Windows 3.1.

Features

Point-and-click interface; object-oriented authoring; frame-oriented metaphor with configurable menus, floating windows, and dialog boxes; top-down interactive design via Title Design view; tools for creating graphic, text, animation, audio, video, and control objects; pixel-accurate control over interactive screen areas; embedded C programming language with "C Coach" that simplifies coding; flexible end-user flow configurations including call modules accessible from anywhere within a title, concurrent modules that run simultaneously, calls to DLLs, and calls to any Windows program; analysis of user input, including wild-carding for multiple correct and incorrect responses, variations in spelling, and unexpected answers; Release utility packages titles for distribution automatically; debug mode.

File Support

Graphics: BMP, DIB, WMF. Animation: FLI, FLC, CEL. Audio & MIDI: WAV, MID, RMI. Video & QuickTime: AVI, MOV, PIC, IPG.

Suggested Retail Price:

\$3,995; quantity and educational discounts available.

Contact

Allen Communication, 5225 Wiley Post Way, Lakeside Plaza II, Ste. 140, Salt Lake City, UT 84116; vox 801.537.7800; fax 801.537.7805. Reader Service #200

lection, timed delay, or internal message coming from an individual frame or from Windows itself. The WAIT FOR... tool is similar, but it pauses execution until the specified action occurs. Both work well in conjunction with BRANCH TO... When the

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user takes a specific action, the title branches to another frame based on the connections originally diagrammed in the Title Design window.

Interactions that involve altering object size, color, show/hide status, and a variety of other object properties are presided over by the OBJECT SERVICES tool. Each type of object has its own list of services. Services available for text objects, for instance, range from case, font, and style manipulations to COMPARE TEXT (that is, compare text input by the user with text strings you expect and take action accordingly). In addition, OBJECT SERVICES can gather information about an object, such as a graphic's position in the frame or the speed of a bounce animation.

Built-in C

For functions beyond those provided for by Quest's array of authoring tools, the system includes an excellent implementation of the C programming language, complete with most of the library functions you're likely to need. In addition to the usual C capabilities, Quest C offers functions designed specifically for Quest. Intermediate users may want to take advantage of this impetus to become familiar with C, if only to make use of these additional functions.

Even if you're not particularly adept with C, much of the coding can be accomplished via the QUEST C COACH. This is a surprisingly effective point-and-click dialog that guides you through selecting function calls and formulates

a syntactically correct C instruction.

The Quest C coach also mediates calls to external code resources known as DLLs, or dynamic-link libraries. A utility called the Extension Manager simplifies registering DLLs with Quest and browsing through them to identify the functions they contain. In fact, Quest comes with a DLL that provides a number of functions for accessing dBase databases, and reads a standard Windows DLL that does the same for ODBC-format database files. Titles can read sequentially through a database; perform searches based on values in a field (including searches for the next matching record); access records directly by number; and add, change, and delete records.

While advanced users will be pleased to have access to C — with which they're likely to be conversant already — intermediate authors might prefer a simpler language such as BASIC or Rexx. If you aren't a programmer, you aren't likely to know or care whether a variable is standard C, ANSI-C, or Windows API and whether it is a *signed char* or an *int*. No matter how you slice it, the instruction "count++;" is not something an author can be expected to come up with to increment a counter.

Still, many Windows API and DLL functions make use of C structures and variables. The inclusion of Quest C enables far more external calls than would be possible with a simplified or script-oriented language, enhancing Quest's reach significantly.

Peeking into Windows

Quest can make use of nearly all devices that have Windows device drivers, such as Windows-

capable touch screens. There isn't much difference between authoring for touch screens or conventional monitors since the device drivers for a touch screen present its interface in terms of mouse events. (If you do author for touch screens, you'll do well to restrict the user to a single mouse button. Touch screens can't tell whether you're using your left or right hand.) Authors partial to three-button mice will be delighted to learn that Quest can deal with clicks and double-clicks from all three.

The move to Windows also enables Allen to take advantage of Windows' built-in graphic and memory-management functions, so they don't need to write and maintain that code on their own. Of course, this also makes them dependent upon Microsoft to fix some bugs that they might have controlled themselves in DOS. For example, don't try to run the Quest examples after you've started working on one of your own projects — you'll crash with a Windows General Protection Fault.

Of course, Windows incurs some processing overhead. While a 4MB 386 system may be sufficient to play back projects with no animation or video, you may be dissatisfied with the performance of anything less than a 486 with 8MB for multimedia titles, and that should be considered a minimum system for development. As noted earlier, we found that simultaneous animation and zooming text yielded a choppy display — and that was on a 16MB Pentium 90 with a 2MB PCI video card. By the time you read this, version 5.1 is expected to be available (see sidebar, "Updates Nipping at Our Heels"), which may well improve this situation.

Conclusions

In emphasizing Quest's extensive functionality, I've neglected an important point: Developing titles with Quest is easy and, equally important, fun. Online help is well organized, and the tutorial is among the best I've encountered. It touches upon all of the major features, building gradually and easily until you're ready to begin your first title. The other manuals — five of them — also have their place, offering greater depth and describing additional functions. Take the time to run the demo program for an introduction to more options and for inspiration in designing your own titles. The interface is so slick that you don't notice the power at your fingertips. That power, and the ease with which you can put it to work, distinguishes Quest 5.0 as a major addition to the multimedia developer's arsenal.

Brian Proffitt directed *PC Week Corporate Labs* before becoming president of *Visionary Research*, an independent consulting firm. He contributes to *OS/2 Magazine*, *OS/2 Developer*, and *PC Magazine*.

Figure 4. The order of graphic objects in the object list determines their position in the frame from front to back, a property that can be used to create useful effects. The dog is obscured when animated balloons float past because the balloons follow it in the list.



CYBERSOUND FX

A TUTORIAL REVIEW ON INVISON'S AUDIO PLUG-INS FOR PREMIERE

B Y C H R I S M E Y E R

Being an audio guy, I'm part of the small but vocal crowd that complains that sound and music get the short shrift in multimedia production. Happily I'm gaining company.

But I don't agree with many of my newfound comrades-in-audio when they rag on Adobe Premiere for being underpowered in the sound department. From the beginning, Premiere has provided trimming, timing, levels, and fades — that's 90% of good audio mixing, just as timing, cuts, and dissolves are 90% of good video editing.

Some look at the variety of special effects transitions and video processing plug-ins available for Premiere, compare it with the relatively puny number of audio offerings, and start to moan. This disparity doesn't bother me. Being an audio guy, I already have an assortment of audio processing software and hardware in my studio.

Granted, not everyone is an audio guy (or gal). But now even the complainers don't have a leg to stand on. InVision Interactive has introduced an inexpensive package of audio plug-ins for Premiere that range from the utilitarian to the extreme. They're not quite a floppy-disk replacement for a fully equipped audio studio, but they're pretty close to essential if you don't own one already.

Audio in Premiere

Before we get into how the InVision CyberSound FX work, let's review the manner in which Adobe Premiere handles audio. In short, a lot like it handles video.

Audio plays on up to 99 parallel tracks. A track may be mono or stereo (that is, one or two channels). Each audio clip has its own fade envelope (see Fig. 1), akin to the transparency envelopes applied to overlaid video clips. When you render a preview or final movie, the audio tracks are also rendered (mixed), encoding any processing or level changes you may have applied. And just as Premiere automatically processes video source material of various sizes, bit depths, and frame rates to fit a preview's or movie's target parameters,

audio tracks of various sample rates and bit resolutions are automatically resampled to match the specified end result.

Premiere can play a handful of audio tracks directly from the Project window in

Plug-in filters can be applied to each audio clip, and more than one filter can be applied to the same clip. You can identify clips that have filters applied by a green line that runs along their top. (Spot the one in

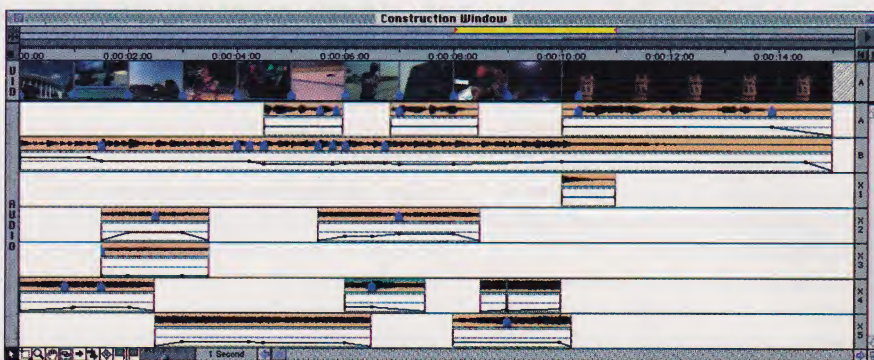


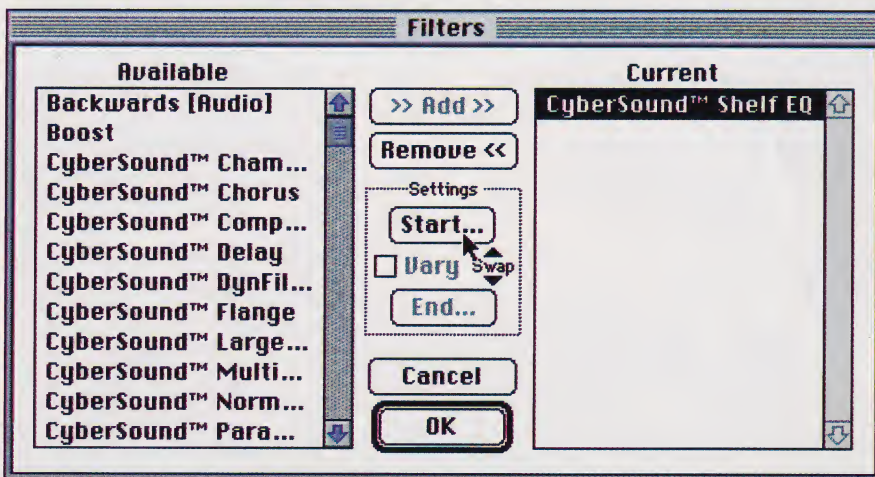
Figure 1. A typical soundtrack mix in Adobe Premiere. Voiceover is in track A, music in track B, extra music hits in track X1, and sound effects and ambiences in tracks X2-X5. Note that the music dips whenever there's narration — a useful mixing tip for any multimedia project.

real time without the need for rendering. However, when you do render, basic audio processing tends to be pretty fast and not the trial of patience that rendering video often is. Helpfully, previews are rendered in 10-second chunks. If you make changes after rendering, only chunks containing altered material need to be rendered again.

Fig. 1?) In Premiere 4, some audio plug-ins (such as Adobe's own Pan filter) allow simple interpolations between unique START and END parameters to create effects that change over time.

When you start stacking up filters, you can pretty much write off realtime playback. You'll be hitting the ENTER key more

Figure 2. The standard Filter dialog box in Premiere. To edit the parameters of a specific filter, select it in the box to the right. Click start or end to edit the parameters at those points. (Note that not all filters accept start and end parameters.)



often to render a preview, and they'll take longer to render as well.

Previews executed from the Construction Window render the result of all mixes and filter manipulations of all audio clips within the set work area. To audition the effect of plug-ins on individual audio clips, there's a separate editing dialog for each plug-in, an extension of the standard filter dialog box (Fig. 2). Not all plug-ins have editing dialogs; some have no parameters to edit.

If you apply more than one filter per clip, their order in the filter dialog reflects the order in which they were applied. When you preview from within the editing dialog of a given effect, Premiere automatically applies all of the filters applied before it so you can hear the combination of effects.

During these previews, Premiere loops a portion of the audio file as it renders the effect. You can set the length of this loop in the Audio Preferences dialog (Fig. 3). The loop always begins at the start of the clip; if there's a long buildup and you want to hear what the filter sounds like in the middle of the clip, you have to make a temporary cut in the clip and apply the filter to just the later portion. The alternative, setting a long loop and gritting your teeth, is procedurally too com-

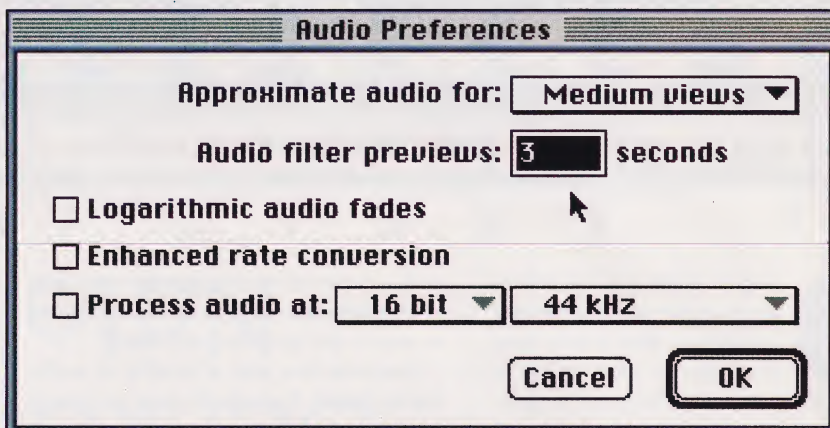


Figure 3. Set the audio filter preview loop duration in the Audio Preferences dialog.

plicated to consider. (At the very least, an option to preview from the start or middle is called for.)

Each time you edit a parameter, Premiere seizes control while it renders the change — you can't even cancel the dialog. Meanwhile it keeps looping, so you're forced to listen as the effect is applied to more and more of the clip. Depending on the CPU inside your computer and the complexity of the filter, this rendering delay ranges from nearly instantaneous to many tens of seconds. It would be great if Premiere were to mute the preview while rendering, as it can be confusing and distracting. There's a similar annoyance when you bypass a plug-in to compare the original sound with the

processed version. When you click the bypass off, you'll find that Premiere hasn't saved the preview buffer and must render the effect again from scratch.

Please don't mistake my critique of the way Premiere has implemented audio filter editing for criticism of specific filters that are forced to work within this structure. But given that I have other audio tools at my disposal, it does affect my decision whether, in a given instance, to use a Premiere plug-in or some other solution (see sidebar on p. 75). Other manufacturers have promised to adopt the Premiere plug-in interface so their products can also access Premiere-compatible filters. Hopefully they'll implement some of these details in a more user-friendly fashion.

PREMIERE FILTER TRICKS

Here are a couple of my favorite tricks using plug-in filters — both video and audio — with Adobe Premiere:

Rendering virtual clips. Many effects are applied only to individual clips. Occasionally, though, you want to use one filter, such as a compressor, on the composite audio track. In this case, simply render your mixed audio, bring the rendered file back into Premiere, apply the desired filter, and render it again.

If this multi-pass process deeply offends your sensibilities, then try this trick: Select the individual clips you want to process using Premiere's Group tool, make a virtual clip from the group, and apply the filter only to the virtual clip. Move the grouped clips to a point later in time, and replace

them with the filtered virtual clip. This way your final rendering is accomplished in one pass.

Crossfades. Occasionally I need an effect to change in intensity over time. If the effect does not support separate START and END parameters, I use this workaround: Make two copies of the clip, paste them on parallel tracks with the same in and out points, and apply the filter to just one of the two. Then use their respective level controls (if they're audio clips) or either transparency controls or cross dissolve transition (if video) to mix back and forth between the processed and unprocessed sound. Make sure the combined levels at any given point sum to no more than 100% in order to avoid an unintended special effect — distortion.

Big Audio Dynamite

Enough background — on to the fun stuff. CyberSound FX falls roughly into five categories: level modulators, equalizers, delays, reverbs, and special effects.

Level modulators. There are two level plug-ins: Normalize and Compressor. Normalize is so simple it doesn't even have any parameters. It looks at the trimmed portion of the clip to which it's applied, finds the loudest point, and increases the level of the entire clip so that the loudest point hits the maximum usable level. Generally it's a good idea to normalize clips as a matter of course to simplify setting playback levels. (I usually use a dedicated audio program such as Digidesign's Sound Designer or Passport's Alchemy.) Since Premiere doesn't include this capability, it's helpful to have a filter that does.

In audio terms, "compression" means something altogether different than the

data compression generally applied to digital video. A compressor senses when a sound exceeds a certain level threshold and pulls it back gently. This enables you to keep the overall loudness higher without distorting. More exotic effects can be created by using the attack and release time parameters, which determine how quickly the automatic volume adjustments occur. Audio tweaks may enjoy the ability to change these parameters, but InVision supplies a number of useful presets for those who don't.

For example, the ADD PUNCH TO MUSIC preset (see Fig. 4) provides the consistently loud, punchy sound favored by radio and TV stations. Indeed, if you know nothing about audio processing, referring to InVision's manual and preset names will help you locate the result you want surprisingly often. (InVision's manual and built-in help are well designed for beginners, if a bit lacking for audio geeks like me.)

Equalizers. CyberSound offers three EQ types: Shelf, Parametric, and Dynamic Filter. Shelf equalizers are designed to affect a broad frequency range; parametric EQs are more useful for targeting a specific frequency (such as a resonant frequency in a room). Again, InVision supplies useful general presets. And you can always tweak

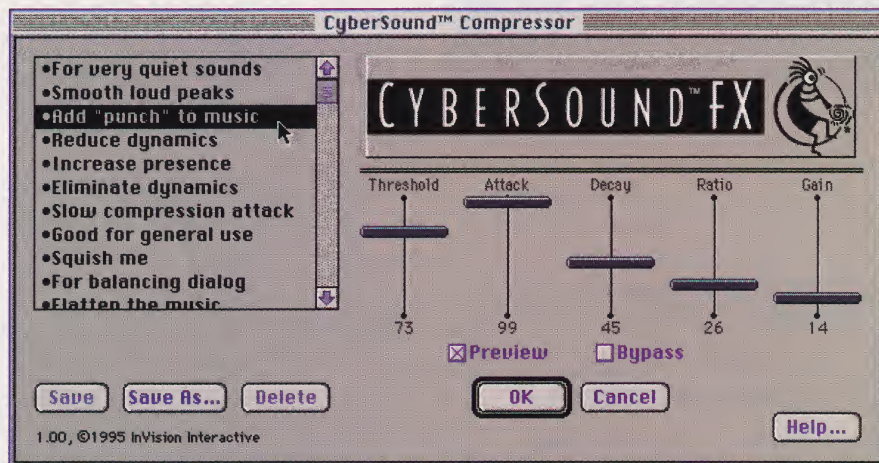


Figure 4. A CyberSound parameter editing dialog — in this case the Compressor, using one of InVision's better factory presets. In audio terms, "compression" refers to modulating level (volume), not to be confused with the data compression generally applied to digital video.

the parameters to suit your needs.

And that's where I start to have trouble with InVision's power steering approach. Parameters are in generic, unspecified units ranging from 0 to 100. This might seem a tiny bit less intimidating to inexperienced users, but it's frustrating for anyone who knows what frequency range or decibel level they're after. In any case, using specific increments doesn't interfere. To be fair, there are cases in which using real-

world increments might be confusing (for instance, a "second" would be longer or shorter depending on the current sample rate). But I still wish InVision would do the math for me.

On the other hand, I was more than happy to turn the left side of my brain off when I got to the Dynamic Filter. This equalizer cuts high frequencies in inverse proportion to the loudness of the signal, cutting background hiss during quiet pas-

THE STUDIO AS PLUG-IN

As powerful as audio processing programs and plug-ins have become, there remain ways in which they can't match dedicated hardware. For instance, it's much faster to twiddle knobs than to mouse around when I'm searching for an elusive effect. Also, I have hardware effects that I prefer subjectively over the software tools currently available. Therefore, I've devised a way to treat my studio as a sort of plug-in for my computer.

In addition to a studio, this requires audio production software that plays and records at the same time. The current version of Premiere can't, so I use OSC's Deck II, a multitrack audio recording and editing program that runs on PowerPCs, A/V Macs, and other models with the help of a Digidesign or NuMedia audio card. Incidentally, an upcoming revision of Deck (version 2.5) is expected to accommodate Premiere audio plug-ins, including InVision's.

Premix the audio clips you want to process into a stereo file and place them in the first two tracks of Deck. Pan them left and right and assign their outputs to the left and right channels of the Mac or audio card. These outputs can be patched into any external processor, such as a reverb. The processor's output is routed back to the computer's or soundcard's stereo inputs, and these inputs are assigned

to the next two tracks in Deck onto which you'll be recording the processed signals. It's important to remember to mute these recording channels; if you assign them to the audio outputs, feedback will result.

Once you've plugged everything in, reset Deck to the beginning of the file, record-enable tracks three and four, and let 'er rip! Now you have processed tracks that can be loaded into Premiere. Deck records tracks as individual mono files; you can either allocate them to two tracks in Premiere with appropriate panning, merge them into a single stereo file using another application such as Sound Designer, or mute the original tracks and have Deck mix the processed tracks as a stereo file. (Don't forget to pan the new tracks left and right as well; Deck defaults to dead-center mono.)

There are lots of other tricks you can do with this setup. If you record the 100% wet (processed) output of your processor (rather than a mix of wet and dry signals), you'll gain the flexibility to add just the amount of effect you desire by mixing wet and dry tracks within Premiere.

The real point is that you don't have to be religious about doing things only in your computer or only with dedicated hardware. Mix and match as the project requires.

CYBERSOUND FX

sages, among other things. Indeed, I use their REMOVE HISS preset all the time; other presets offer some unusual effects. (For even more bizarre EQ results, mail in your

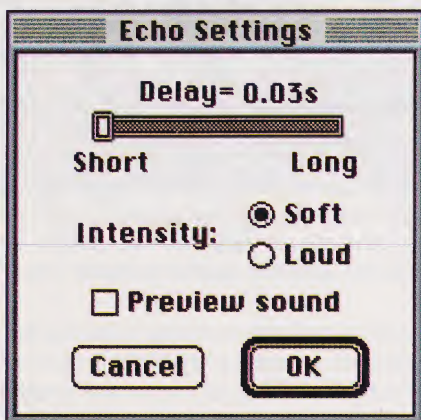


Figure 5a. Adobe's standard Echo filter

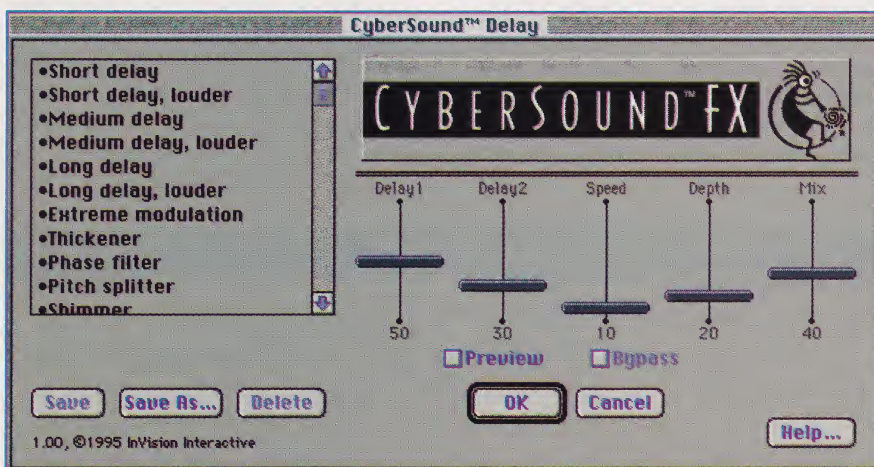


Figure 5b. compared with the more elaborate CyberSound Delay

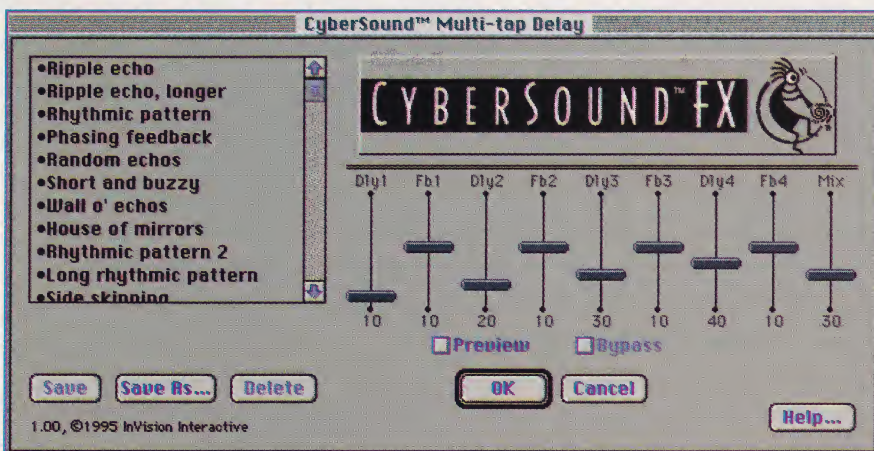


Figure 5c. and Multi-Tap Delay

warranty card and InVision will send you a Wah Wah plug-in.)

Unfortunately, due to the way Premiere's plug-in architecture currently handles audio, the CyberSound effects don't accept start and end parameters. This means you can't make the filter settings change over time (for instance, progressively removing the bass as you crossfade from a straight sound to the same thing coming out of a radio). Happily, Premiere 4.2 — scheduled for fall '95 — is expected to accommodate audio plug-ins with dynamic parameters, and InVision promises an update soon thereafter. In the meantime, check the sidebar on Premiere Filter Tricks (page 74) for a way to simulate this effect.

Delay. Generically speaking, delay simulates the sound of aural reflections bouncing around a space. Adobe supplies an Echo plug-in with Premiere (Fig. 5a), but it's much less capable than InVision's CyberSound Delay plug-in (Fig. 5b). The latter provides two independent echoes at

PROS AND CONS

Pros

The wealth of presets and simple user interface are great for beginners. Rendering is exceptionally fast on Power Macs. Compressor and EQ plug-ins are particularly useful.

Cons

Lack of "real" audio units and detailed information may be frustrating to some users. Reverb and Pitch Shifter algorithms need work.

The Bottom Line

Adds functionality previously unavailable to Adobe Premiere. A must-purchase for those working with audio in Premiere.

once, and you can create a variety of effects by varying the length of the delays over time (which modulates the pitch of the echoes). There's no feedback, which means you get a single repeat of the source sound. The CyberSound Multi-Tap Delay (Fig. 5c) offers four independent echoes with feedback, so they can repeat over and over at decreasing volume until they fade into silence. This is better for simulating the sound of an enclosed space such as a room. Multi-Tap doesn't possess modulation capabilities, but if you return that all-important warranty card, InVision will also send you an Echo plug-in that offers both feedback and modulation parameters.

Reverb. One of the most common and useful audio sweetening tools is reverb, which adds a more subtle spatial ambiance to voices, music, and special effects. CyberSound includes three reverb plug-ins, based roughly on the size of the room they are attempting to simulate: Chamber, Small Hall, and Large Hall.

Alas, these were my least favorite of the FX. To my ears, none sounded realistic, more akin to a lot of closely spaced echoes than the smooth wash of some dedicated reverb units. However, reverb quality is very subjective, and dedicated reverb processors can cost from a few hundred to several thousand dollars.

I keep the plug-ins installed for occasions where they might be good enough. You may find you like their sound or that you can use them for special effects.

Special Effects. These plug-ins provide the types of effects that you might find ded-

icated to individual instruments in a recording studio. They can be a lot of fun on entire clips in Premiere as well.

Since I just finished ragging on InVision's reverbs, I may as well start this group with my least favorite, Pitch Shifter. This changes the pitch of a sound without changing its duration. (When you alter a clip's speed in Premiere, both pitch and duration change together.) This is fun for making adults sound like chipmunks, children sound like trolls, and for creating twisted sound effects.

Unfortunately the pitch shift amount is, once again, represented in generic units between -100 and +100 (a few presets specify common intervals). Also, the audio quality is not the greatest. I use Passport's Alchemy to perform the complementary operation — changing time without altering pitch — far more often, usually to tweak the timing of sound to match video cuts. InVision reports that this is impossible within Premiere.

CYBERSOUND FX

Description

Audio processing plug-in filters for the Macintosh version of Adobe Premiere.

System Requirements

Adobe Premiere version 3.0 or higher, Macintosh computer (68020 or faster), 4MB RAM (6MB with PowerMac), system software version 7.0 or higher, QuickTime version 1.6 or higher, 1.2MB on hard disk.

Features

Chamber Reverb, Small Hall Reverb, Large Hall Reverb, Shelf Equalizer, Parametric Equalizer, Compressor, Chorus, Flange, Phaser, Delay, Multi-tap Delay, Pitch Shifter, Dynamic Filter, Normalize, and Tremolo effects. 239 editable presets. Wah wah and Echo effects supplied upon receipt of user registration card.

Suggested Retail Price

\$129

Contact

InVision Interactive, 2445 Faber Pl., Ste. 102, Palo Alto, CA 94303-3316; vox 415.812.7380; fax 415.812.7386.
Reader Service #201

INDUSTRIAL STRENGTH PLUG-INS


The concept of plug-in audio processing tools isn't unique to Premiere. Indeed, useful effects such as equalization, pitch shifting, and normalization have been available in dedicated audio processing programs such as Passport's Alchemy and Digidesign's Sound Designer since before Premiere arrived. The sound quality of the processing routines in these packages tends to surpass that of Premiere.

Many Mac-based multimedia audio specialists employ one of Digidesign's audio cards in their work. Ranging from the \$1,295 Audiomedia II to the \$8,000-and-up Pro Tools III, these contain dedicated DSP (digital signal processing) chips that work their magic on audio without taxing the CPU. Companies such as Steinberg, Waves, Jupiter Systems, and Digidesign itself offer pro-oriented equalizers, compressors, and other plug-ins that work with these cards.

Mind you, these plug-ins alone can cost as much as a copy of Premiere, but their power and precision are worth the price to audio nuts like me. Before long, expect to find them running on AV Macs and PowerPCs without

additional hardware, or on generic Macs to process files out of real time.

If you already own a Digidesign audio card and have access to the Internet, you must check out the Daw Mac FTP site (that's DAW for digital audio workstation): <ftp.best.com/pub/bakalite/daw-mac/>. Daw Mac offers many useful files including demo versions of several Digidesign-compatible plug-ins and a variety of shareware and public-domain audio tools.

One such tool is Reverb by Bill Gardner (hard-core audio geeks only, please). It enables you to program reverbs and effects that run in real time on many Digidesign cards, or out of real time without a card. Being shareware it doesn't have much of a user interface, and it isn't 100% compatible with other applications. (For instance, it'll steal your audio card from the Mac's Sound Manager, which can cause some confusion.) But it does provide a low-cost path to serious audio processing and gives neophytes a glimpse of the brave new world of plug-in audio processors. 

Getting back to the positive, one of my favorite CyberSound plug-ins is Chorus. This one gives sounds a shimmering, layered quality. In fact, I just used it to make an overly straight chime effect sound more exotic and musical.


Flange and Phaser are variations on the same idea. Flange gives a deeper, more metallic effect (great for spaceships flying by). Phaser's effect ranges from shimmering Chorus-like sounds to exotic underwater explorations. Rounding out the set is Tremolo, which rapidly modulates the loudness of a sound, commonly used on rock organs and surf guitars.

Deeply Effectuated

Overall, InVision's CyberSound FX collection is pretty much a must-have. The REMOVE HISS, ADD PUNCH TO MUSIC, and CLASSIC CHORUS presets alone are worth \$129. Yeah, the audio geek in me has some quibbles (particularly with respect to Reverb and Pitch Shifter). I wish the settings were calibrated in real-world units and that parameters could be varied over time. To be fair,

though, these filters seem to be aimed toward less specialized users. Coming, as they do, with a couple of hundred useful presets, they serve very well indeed.

Processing times are extremely fast on a PowerPC for most of the plug-ins (Reverb and Pitch Shifter are the only slow ones). Things take a bit longer on a 68040 (minimum 68020 required) but they still require less time, on average, than most video effects.

There are other useful, more specialized audio plug-ins for Premiere, and I hope they keep coming. Regardless, CyberSound FX should be part of your audio toolbox — particularly if you don't have a full-blown audio studio at your disposal. 

Chris Meyer the audio guy works with Trish Meyer the video gal at CyberMotion in Los Angeles. Chris is also manager of technical research at Roland Audio Development and teaches digital audio at the Hollywood branch of the American Film Institute.

Creativity Under the Gun

Maximizing Productivity in the Multimedia Studio

BY CHRIS MEYER

Recently, CyberMotion was asked by Radius to create an opener for a series of print-oriented seminars called the Creative Expo. The seminars, scheduled for summer 1995, were to be held in the unusual, but definitely creative, setting of various art museums throughout the U.S. Originally Radius allocated four weeks for the creation of a one- to two-minute opener. Due to circumstances beyond their control, however, they ended up handing us the job only one week before the first event. Time to get cranking! Here are some of the tricks we used to get the project done.

The Timing Storyboard

My partner Trish and I both have a background in music, so for us everything starts there. We like to have the music finalized before we even start working on the video. Having cool music running underneath your video is one thing; having video cuts and special effects tightly timed to the music raises your production to a higher level. Radius chose a piece of music composed by yours truly, which helped us to get started more quickly.

While I edited the score (the vocal track needed to be changed to better match the subject matter), Trish used the rhythm track to spot major sections and beats in Adobe Premiere. We always place markers in the audio track's clip window to mark downbeats of every bar, the starts and ends of major phrases, and sound effects (see Fig. 1). We transcribe the numbers manually to animation sheets as well, in case we need to use them in other programs, such as Adobe After Effects.



Chris Meyer is manager of technical research for Roland Audio Development. A self-avowed QuickTime Baby who bought a Video-Spigot, Hi-8 camera, and Premiere 1.0 as soon as they shipped, he also serves as resident tech for his wife's desktop motion graphics company, CyberMotion, in Southern California.

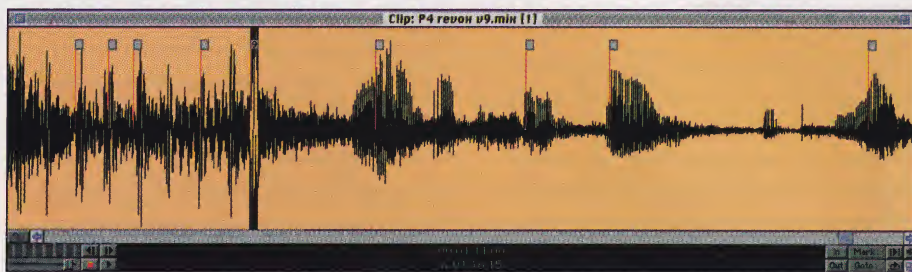


Fig. 1: We usually start by marking downbeats and other hit points in the audio track.

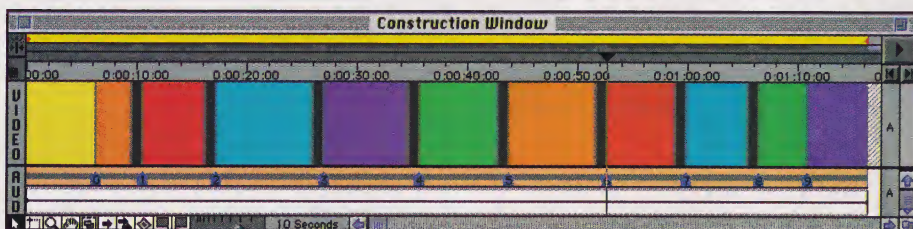


Fig. 2: The next step is creating a "timing storyboard" to help us to check whether rough divisions of video suit the music.

Since the Expo was being held in eight cities, and there happen to be eight letters in the word "creative" (take advantage of coincidences whenever you find them!), Trish decided to dedicate a section to each letter and city. This required finding eight subsections within the music, aside from the intro and ending.

To make sure that such artificial divisions of the music will make sense with video, before we start animating we usually cut up still images or create solid-color backgrounds and match them to the music (see Fig. 2). If these simple cuts between the colors and stills seem to make sense against the music, then we can be pretty confident that the final animation will too. If it feels wrong at this early stage, then chances are it will take a lot of work to make it feel right with the final animations, which are much harder to change later. Think of this as storyboarding your timing—it's at least as important as storyboarding images or frames.

Division of Labor

After we have a timing storyboard, we create this framework within After Effects, where we do 90% of our work. In this case we worked top-down: A master composition file was created in AE that marked out the sections and

transitions between them. Each section was represented by a modular sub-composition, initially consisting of a few stills that set the desired mood. We both had a copy of this master file, and we divided the sections (and thus the workload) between us. It's common around here to find us in front of our separate computers, working in parallel, while our third computer renders whatever one of us has just finished.

Yes, our computers are networked. But most affordable networking solutions, such as Ethernet, are too slow for moving around the hundreds of megabytes of source material that go into a project like this. (We used stills for the most part; the network problem is even worse when the sources are video.)

Instead, we use "sneakernet." Each computer has a CD-ROM drive and a removable drive bay; we swap discs and drives as needed. Our workstations also have large fixed hard disks, so the removables are used only for transferring files. When one of the subsections is finished, we copy the changes back to a removable (taking advantage of utilities such as Fifth Generation Systems CopyDoubler's FAST COPY function, which only copies over new or updated files), slap it into the rendering machine, and let it render directly to and from the removable. (Note: CopyDoubler

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FRAMES OF REFERENCE

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We've tried many removable drives, including SyQuests and optical drives. For our purposes, the main criteria are affordability — we need at least one base/receiver on each computer (adding the drive modules themselves as needed) — and the capability to do hot mounting; that is, dismounting and remounting drives without having to shut down. Currently we use Micropolis Microdisks with 1.7GB modules (you can get modules that hold up to 4.3GB, or even 9GB with a different base/receiver).

Under the Macintosh operating system, we just click and drag the drives into the trash to dismount them. A hard disk utility such as FWB's Prober enables us to remount them later. They've failed us only once, and that was our fault: We didn't fully dismount one before mounting another, resulting in drive A's directory getting written to drive B. I lost some hair over that.

By the time you read this, we probably will have set aside our SyQuests, opticals, and Microdisks in favor of two new systems. For moving smaller files around (fewer than 1GB total), we're truly jazzed about the new Iomega Jaz, a speedy \$600 drive with \$100 cartridges. For realtime video capture and playback, we've been im-

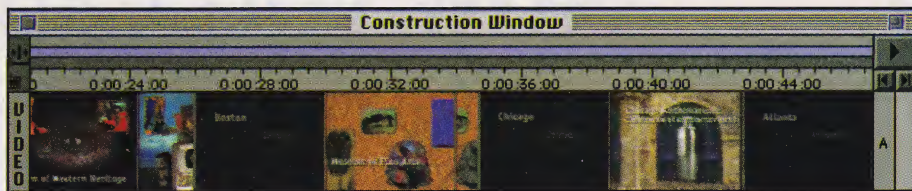


Fig. 3: After we're finished working on the individual modules, they replace their place holders in our timing storyboard.

pressed by the ProMax arrays that use Conner SCSI-3 single-connector drive modules. These have both power and data lines on one connector, reducing the chances that spurious data will appear on the SCSI bus as you connect and disconnect drives. Conner makes 1GB, 2GB, and 4GB single modules that cost roughly \$500 per gig; a pair of them in an array is fast enough for some great-looking video.

The original ProMax tower base that holds these drives was a bit expensive, but now they have a cheaper shoebox cabinet that holds two drives. It's affordable enough to put one on every computer. Now we can capture video using a computer equipped with the Beta SP and Radius Telecast, then move the files (two drives at a time) to the other machines without needing to copy.

Is It Live, or PhotoCD?

As I mentioned, we have a CD-ROM drive for

each computer. We keep a large library of stock images and backgrounds on hand, in PhotoCD format if we can get it. All our CDs are cataloged using Adobe Fetch; the Fetch catalogs are much smaller than the images themselves. We can grab the drive or cartridge with all the catalogs on it (or copy the appropriate ones to a transfer disk) and browse for images on any machine before loading the CD to transfer the high-resolution version. We didn't have time to shoot original footage for the Creative Expo job, but fortunately we had enough images of art and the cities being represented to get by.

When using PhotoCD images to produce full-screen video, we prefer to use the 1500x1000 pixel resolution. At more than twice the final full-screen size, it leaves plenty of room to crop or, more important, to pan across to the part of the image you want. One of our favorite tricks is to pan across still images to simulate a film camera's moves (this is where After Effects' multiple keyframes and interpolation methods really come in handy). It looks more interesting and is apt to fool users into thinking they're seeing a video. The fact that you create the motion also gives you the freedom to tweak it later; you're not stuck with what the camera person gave you. Since PhotoCD images are so clean compared with video and even moving film, they compress quite efficiently, resulting in very sharp output through realtime JPEG boards. For some work we even prefer PhotoCD images over video.

Did We Make It?

What? Oh, right — the Creative Expo opener. Yes, we did manage to cram what should have been a two-week job into five days. On the last day, Trish did the ending and created the credits (important: credit your sources and stay copyright clean) and brought all of the individual segments back into Premiere, where they fit right into the places occupied by the stills and solids of our timing storyboard (see Fig. 3). A final render as a QuickTime composite was all that was needed to finish the job. From there we laid it back to videotape and express-mailed it one day before the first show.

We couldn't have pulled it off if we didn't have a structure to start with, a good CD-ROM library of images, removable drives for swapping data among computers, and a spare computer to render finished segments while we continued work. I hope some of these tricks allow you to spend more days on the beach than on the firing line. ☺



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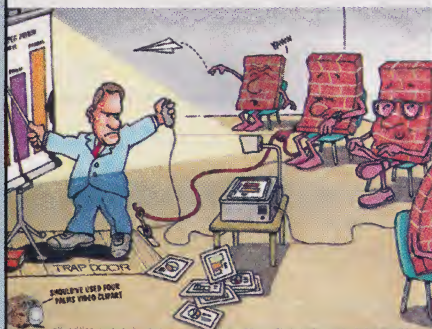
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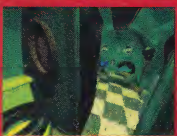
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Click on the Pretty Pictures

C++ Platform Independent Hot Spots

BY JOHN WORTHINGTON

In this wild and woolly world of multimedia programming, you have to be ready for anything. Never go out without a belt and suspenders. That sort of thing.

One of the best ways to be ready for anything is to build up a library of code that you can use in a variety of situations. That way you don't have to be exceptionally clever all the time.

Think about it. Most, if not all, of the interactive projects I've seen involve having the user click on pretty pictures. This is true of everything from HyperCard stacks to Director movies, from custom programs to the World Wide Web. Yes indeed, if you're going to call it multimedia these days, you'd better have pretty pictures the user can click on.

Of course, given how common it is, authoring systems such as HyperCard, Director, Authorware, and ToolBook make it easy. In fact, it's the ease of creating such conventional interactive elements that sends people scurrying for ready-made authoring tools.

Actually, doing it yourself seems much harder than it really is. And once you have the code lying around, it becomes part of your own personal authoring suite.

Tracking mouse clicks on your program's hot spots is a basic technique that every multimedia programmer needs to be familiar with. It's also closely related to collision detection, which is an essential part of game programming.

The basic idea is pretty simple. The user clicks on a pretty picture and your program does something appropriate. All you need to know is where the hot spots are and whether the user



JOHN UELAND

clicked on one of them. Of course, doing all this well is a little more complicated.

Assuming you aren't writing a graphic adventure game, you'll probably want to provide the user with some information about what they can click on. If these hot spots look like buttons, you're done. If your interface is more "artistic" you might want to outline the hot spot when the user moves the mouse over it. After all, if they can't figure out what to click on they're going to get frustrated, and frustrated users don't recommend your product to their friends.

You'll also need some other visual feedback for when the user clicks on the hot spot. You might even want some additional feedback when the user lets up on the mouse button. Maybe an animation or two.

These assorted highlight states can be handled either programatically or with separate bitmaps for each state. I almost always use the multiple bitmap approach because it lets me take advantage of all the cool anti-aliased effects

you can get in Photoshop.

A good trick is to place all of the hot spots in their default state on the background image. Nothing is tackier than a screen that draws the background and then slowly draws all the hot spots. This trick saves you from that problem. You'll still need separate bitmaps for each hot spot so you don't have to redraw the entire background every time the user clicks on something.

Of course, the whole point is that the user's clicking initiates some action. Almost always you'll want to perform this action on mouse-up rather than mouse-down. This gives users the opportunity to change their minds and move off the hot spot before they release the mouse button. Also, this is the way Mac and Windows interfaces normally work, so anything else feels strange. The exception to this is something like an onscreen piano keyboard, where the user expects the action to take place on mouse-down.



John Worthington is the founder and president of MojoSoft, a company specializing in multimedia technology and development. In his misguided youth, he wrote the Macintosh MIDI Manager and was the project leader for QuickTime. His most recent project is the MusicNet CD-ROM.

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READER SERVICE NO. 22

SLIMY HACKS & CHEAP TRICKS

I ported some of my own hot spot code to C++. I also took the opportunity to look at some of the cross-platform issues. Here's a simple class definition for a hot spot. It's sufficient for obvious hot spots, since it doesn't track the mouse moving over the hot spot.

```
class hotspot {
private:
    Rect    bounds;
    short   state;
    Image   state[3]; // disabled - state == 0,
                     // enabled - state == 1,
                     // highlighted - state == 2
    void *   action;

public:
    hotspot();
    ~hotspot();
    void     SetBounds(Rect * newBounds);
    void     SetImage(Image enabled,
                     Image disabled,
                     Image highlighted);
    void     SetAction(void * action);
    void     setState(short newState);
    void     draw(short Image);
    Boolean  mouseDown(Point p);
    Boolean  mouseUp(Point p);
}
```

The definition of an "Image" is left as an exercise to the reader. In the cross-platform projects I've been involved with, we simply used a pointer to raw 8-bit pixels. You can obviously get much fancier. Image itself might be a class that's smart about its drawing context.

The interesting part of this code is the mouseDown and mouseUp member functions. Here's what they look like:

```
Boolean hotspot::mouseDown(Point p)
{
    if (state == 1) // hot spot enabled?
    {
        if (myPtInRect(p, &bounds))
        {
            state = 2;
            draw(2); // draw the highlighted state

            return true;
        }
        return false;
        // either we weren't enabled or the
        // PtInRect failed
    }

    Boolean hotspot::mouseUp(Point p)
    {
        if (myPtInRect(p, &bounds))
```

```
    {
        // it only counts if the user let the
        // mouse button up in the same button
        // they clicked on

        if (state == 2)
        {
            draw(1) //draw enabled state
            action(); //do the default action
            return true;
        }

        return false;
        // PtInRect failed, or we hadn't been
        // clicked on in the first place
    }
}
```

You've probably noticed that I'm calling a routine called myPtInRect(). Mac and Windows both have PtInRect routines, but they want the arguments in the exact opposite order. Here's what the routine looks like:

```
Boolean myPtInRect(Point p, Rect * r);
{
    #ifdef _Mac_
        return PtInRect(p,r);
    #endif

    #ifdef _Windows_
        return PtInRect(r,p);
    #endif
}
```

With a small set of glue routines like this, you can keep most of your code platform independent. However, no matter how platform independent your code is, it'll always be biased toward one platform or another. Since most of my programming is done on the Mac, I made myPtInRect() follow the Mac version of PtInRect. I could have had it take the arguments in the order that Windows requires, but I didn't. If programming on the Mac, I also would have typedef'd the normal Windows BOOL type to Boolean, so I wouldn't confuse myself.

If you're a Windows programmer, by all means do things the other way. You should be consistent about it so you don't confuse yourself later.

I keep an array of all the hot spots for the current screen, and when I get an event like mouseDown or mouseUp, I call each of the objects in the array and give them a chance to handle the event.

Here's a fragment for mouseUp.

```
for (i = 0; i < numHotSpots; i++)
{
    if ((hotSpotArray[i])->mouseUp(mousePos))
        break;
}
```

So far, this column has discussed only rectangular hot spots. This doesn't mean a hot spot must be limited to a rectangle; it just means that we'll only check to see if the user clicked within the rectangle that surrounds the hot spot.

It's almost as easy to program hot spots with arbitrary shapes using regions. In this case, because PtInRegion tends to be slower than PtInRect, I'd check the bounding rectangle first. This trick is used in most arcade games, where you constantly have to check for two sprites colliding. A first check is done to see if the bounding boxes of the sprites intersect. If so, a second check is done to see if the visual representations of the sprites intersect. Of course, if the difference between the bounding box and the actual shape of the sprite isn't large and things are moving fast, you can usually skip the second, more complicated check.


Here's an implementation of mouseUp that uses regions. It assumes you've added an extra data member to the class to hold the region for the hot spot.

```
Boolean hotspot::mouseUp(Point p)
{
    if (myPtInRect(p, &bounds))
    {
        if (myPtInRegion(p, &region))
        {
            if (state == 2)
            // it only counts if the user let the
            // mouse button up in the same button
            // they clicked on
            {
                draw(1) // draw enabled
                // state
                action(); // do default
                // action

                return true;
            }

            return false;
            // PtInRect failed, or we hadn't been clicked
            // on in the first place
        }
    }
}
```

Here's where cross-platform issues start to creep up again. Mac and Windows define regions differently. It's always best if you know which platforms you must support before you start working on a project. You can identify these kinds of issues early and come up with a design that solves them gracefully.

Remember that hit tracking isn't limited to static bitmaps, either. QuickTime can supply the coordinates when a user clicks on a movie. There's no reason why you can't have hot spots that exist only for a certain time, or even hot spots that move along with a movie. Consider that homework for next time. 

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Complete Design

How to deliver projects on time, on budget, with no surprises

BY WILLIAM VOLK

Macintosh or Windows. Console vs. Computer. Alias or SoftImage. Ford vs. Chevy. Interactive designers may not agree on everything, but almost everyone agrees that a good, complete design is vital to a project's success. A truly complete design should enable you not only to create the product you have imagined, but to predict costs and meet a schedule as well. Designs that are less than complete often result in projects that ship late, exceed their budgets, and do not reflect the original vision of the designers.

Interactive products show great variation. Today's titles go beyond the simple "screen o' buttons," whose hot spots trigger branching or the playback of various media. They incorporate 3D navigation, simulation, and other emerging technologies. Nonetheless, all interactive products display something on a video monitor (or television) and accept user input. Input devices vary but perform similar tasks: selecting an action, providing simulation input (a joystick, for example), or moving a cursor. Media elements include animation, video, audio, graphics, and text.

Likewise, the issues facing interactive designers are similar regardless of the delivery technology. Designing a 3D environment that will be rendered on a high-powered workstation and converted into digital video is similar to designing a 3D environment that will be displayed by a computer in real time.

Let's define just what a complete design involves and explore the effects this definition may have on production and programming. A project's design is complete if:

- You could hand the documentation to an outside production group and have a reasonable chance of getting what you want.
- You know the production content of your project down to the individual names of the pictures, sounds, movies, and other elements.
- The interactive functionality has been thoroughly thought out. No areas remain to be worked out later.
- The team believes in it. They believe if they stick to the design, they will have a successful product. The design process involved a consensus of artistic, technical, and management considerations. The design process begins with putting together

an effective team, preferably including members from a variety of backgrounds. A typical group for an educational CD-ROM might include an educator or curriculum expert, an artist, an interactive designer, a programmer, a musician, and a project manager responsible for coordination, scheduling, and budgeting. It's very important to have a team member who can sketch illustrations or storyboards on the fly. These sketches are essential for capturing ideas and serve as a foundation for further development.

Defining the Concept

The design document should begin with a short proposal or treatment stating the basic idea behind the title. Often one person originates the vision or initial concept, although in some cases the nature of the title is predetermined, such as a licensed title based on a film. Regardless, the treatment should reflect input from all members of the creative team.

Let's say we've decided to create *The Ultimate Bicycle CD-ROM*. The treatment might be a one- or two-page document describing how the title will cover bicycle history, maintenance, and riding techniques. It would explain how the title will enable you to design your own bicycle and include an interactive game based on the tactics of cycle racing.

To develop the treatment, begin with a no-limits brainstorming meeting. At this stage, no "fire hosing" of creative sparks is permitted. The impossible, unpopular, and bizarre can be considered. Eventually you will need to focus on practicalities, but it pays to start without constraints.

It's important to avoid marathon meetings that drag on forever. A creative meeting loses steam after a few hours. This is not assembly line work; it requires that people be at their most imaginative. Meetings that go on too long often result in rushed designs that gloss over major details.

Hierarchical Design

The design document should be divided into a few main sections that reflect the major sections of the project. If it's necessary, the main sections can be divided into subsections, which in turn can be divided. In a way, the design document's structure reflects the design process: you start with a basic concept and flesh it out with increasing degrees of detail. Be prepared to go over the same

ground again and again, making the design increasingly practical and specific.

The number of major headings you establish depends upon the project's size and the resources of your design team. One way to think about this is to consider whether your team can deal with a particular design section within a reasonable number of short meetings, or whether you need to break it down into more manageable pieces.

For the bicycle CD-ROM the main sections might be history, maintenance, techniques, custom bike builder, and the racing game. We might divide the history section into history of design, racing, and the future of the bicycle. This suggests a series of meetings devoted to ever more specific sections of the design.

The Interactive Scene

Finally we reach the level of individual elements and specific interactive programming. At this level of design, you are creating an "interactive scene": a specific location, screen, or page within your title. The design for an interactive scene should have the following traits:

- Its functional aspects should not change to any great extent while it is in operation. Hot spots, media, and interactive behavior should be as consistent as possible. If you must change an interactive scene's appearance, contents, or behavior dramatically, it's a good idea to treat the altered scene as a separate interactive scene in your design.
- Attached to the description of each interactive scene should be a list of all production elements associated with it. If elements are used in multiple scenes, they should be listed in the description of the first scene in which they appear and referred to in subsequent scenes. Being this specific enables the art director to create an accurate budget based on the cost of producing similar elements in the past.

Continued on Page 90

William Volk spent six years with Activision as vice president of technology and was instrumental in creating *Return to Zork*. Currently he helps design interactive television as director of interactive development at The Lightspan Partnership.

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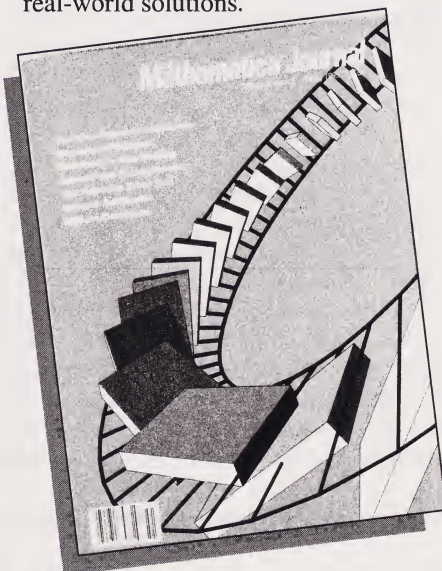
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AUTHORING REALITIES

- Your sketch artist should be building the storyboard during meetings. That way everyone has a clear idea of the design's direction and progress.

One example of interactive scene design in *The Ultimate Bicycle* is the index of bicycle photos in the history database. It might resemble a timeline — one scene. Better yet, it might be a movie that moves the user down a road along which forward motion represents the evolution of bicycle design, with a different bicycle modeled at each bend in the road. In this case, it would be sensible to specify each segment as an individual interactive scene, perhaps one for each modeled bicycle.

Prototyping

One of the keys to a strong design process is prototyping. Prototypes are mini-programs, quickly built, that test assumptions in the design. You can use them to test interface and content ideas with potential users. This is a good way to deal with one of the typical objections to complete design: "We can't design it completely because it's interactive."

In our example, the bicycle race simulator is a prime candidate for a prototype. For artwork, simply use scans of the storyboards you've been generating all along. This "place holder" artwork may not be pretty, but it allows the programming team to try out design concepts and permits testing question-

able aspects of the design. Do bicycle enthusiasts really want a racing simulator, or would they rather have a gear chart generator? Prototyping gives you good ways of answering such questions as they arise.

Naming Conventions

Sections, subsections, scenes, and their elements should be named consistently. Naming conventions should make it easy for the staff to identify precisely where each element is to be used. This can be difficult given MS-DOS filename restrictions, but it is necessary. Directories can be used with operating systems that share the MS-DOS eleven-character filename limits to represent the hierarchy of elements.

Take the time to devise a naming convention appropriate to your design and production process. Such a system might look like this: File names could follow the format SSUUIIIIE.TTT, where SS identifies the section, UU the subsection, II the interactive scene within the subsection, EE an element in the scene, and TTT the file type. For example, A1B3F501.PIC might be the first picture element in scene F5 of subsection B3 in main section A1 (picture of a high wheeler circa 1880).

Of course, you'll need some way of knowing that A1B3F501.PIC is a picture of a high wheeler and not a balloon tire cruiser circa 1955. If the design is small enough, simple lists or spreadsheets will do. For very large projects, a relational database provides more flexibility for description: what scene

the element belongs to, what version (if any) has been delivered, whether it is being used more than once, and so forth. This is useful for tracking production and even for producing a rough budget.

Not all elements in an interactive scene are production elements. It is important to specify hot spots, cursor changes, and the like as well. A heading for each scene marked "Notes to the programmer" can specify these elements.

Seeing the Forest

We've discussed the "trees" of the design. To see the forest, it's important to diagram the relationships between sections, subsections, and scenes. This helps organize the production effort toward continuous delivery of elements, minimizing "art crush" and enabling the programming staff to work efficiently.

When the product is ready for testing, the design document will benefit the quality assurance team. After all, they will have a clear guide to the operation of each section of the title, down to the individual displays and interactions. If errors occur in production or programming, the testers can use it to identify the problem. Encourage the programmers to use the naming conventions for their own code to coordinate debugging with the design document.

Granted, this design process is time consuming. But when a design has been declared "final," you'll know how the title will look, what it will cost to produce, and a sensible schedule for production and programming. 

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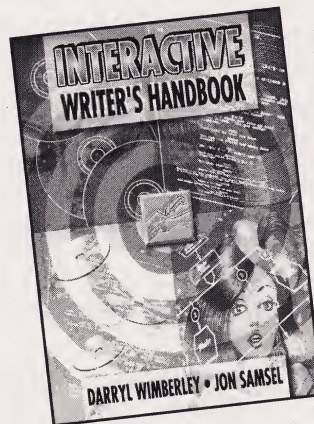
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A Lesson in Human Anatomy

Techniques for Creating Realistic Veins,
Painting on 3D Objects, and Morphing in 3D Studio

BY SIMON KNIGHTS

Human Anatomy has never struck me as a particularly exciting topic. Memorizing obscure muscle and bone names is one of those mild forms of torture, a rite of passage reserved for prospective members of the medical profession. A similar aversion to anatomy exists in the animation world. Creating human anatomy in a 3D modeling package is one of those baptisms of fire, a rite of passage we all have to survive on the way to calling ourselves computer animators.

Always on the lookout for creative solutions to difficult problems, I recently came across some impressive 3D modeling and animation in a CD-ROM/book combination published by Mindscape and Ziff-Davis Press. *How Your Body Works* features an interactive exploration through a doctor's laboratory. The laboratory is a 3D modeled scene. As the visitor, you search through the objects inside, learning as you go. You shuffle through drawers and cupboards, fly through a human body, select videotapes to watch, or clumsily melt down human brains. Now this was more to my taste than *Gray's Anatomy*!

The entire project was the result of a collaboration of forces assembled by Mindscape (formerly Software Toolworks). Red Hill Studios provided the video and art direction, the Canyon Company was responsible for programming, and the 3D modeling and animation were created by Shadow and Light Productions, a San Francisco-based animation and multimedia company.

Stuart Gold owns Shadow and Light Productions. He's been animating since the days when Cubicomp systems were amazing everyone. Gold was happy to share his strategies for making these technical animations of human anatomy come alive. . . .

The project's particularly aggressive timeline and budget requirements caused some



***How Your Body Works* is full of impressive 3D modeling and animation that was the work of four full-time modeler/animators and two texture designers working with Autodesk's 3D Studio and Alias software running on the SGI platform.**

concern. Gold knew from past experience that modeling the human figure was not going to be easy. Eventually he contracted a team of four full-time modeler/animators and two semi-full-time people for texture and modeling tasks. At the beginning of the project, he bought an Alias seat to add to his SGI system, although in the end it was only used for a couple of special effects. Almost all of the work was done in Autodesk's 3D Studio, which all of the contractors had access to.

One of Gold's first decisions was to take a careful look at the offerings from 3D model vendors. A huge amount of digitized geometry has become available recently from companies such as Acuris and Viewpoint DataLabs, which have libraries featuring thousands of models in most 3D file formats. Many modeling and animation programs

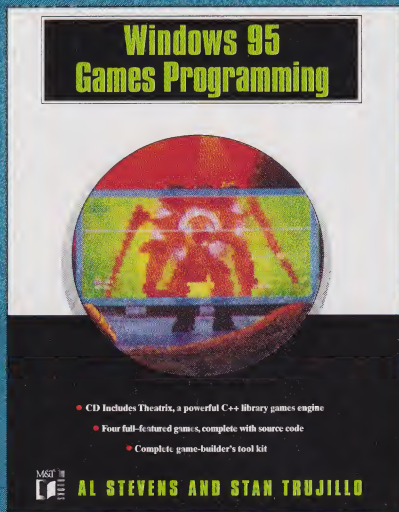
bundle geometry and texture libraries on CD-ROM. 3D Studio's own World Creating Toolkit is an excellent source of objects that Gold's team used in the laboratory scene.

Eventually they also bought a large selection of the Viewpoint DataLabs anatomical models. Many of these models are offered in three different resolutions, and Gold carefully selected the appropriate model for whatever view was needed. High-res for close-up shots and lower resolutions for long shots. The Viewpoint high-res skeleton contains 142,000 polygons and costs \$4,995. The low-res skeleton contains only 9,000 polys and costs \$1,495, so the selection process was important from both the rendering and cost points of view.

When asked if the expense of buying models was cost effective, Gold grinned and replied, "It was beyond cost effective. Even

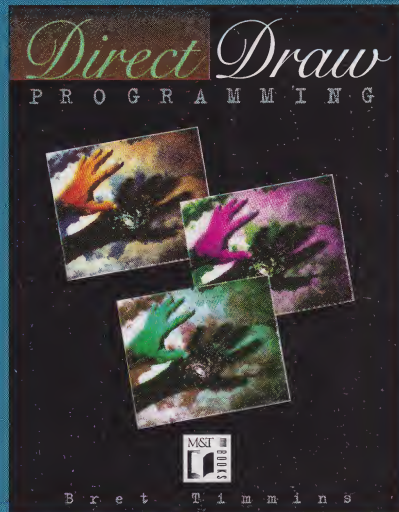
Simon Knights is a staff animator and 3D artist with Crystal Dynamics and an instructor at the Computer Arts Institute in San Francisco.

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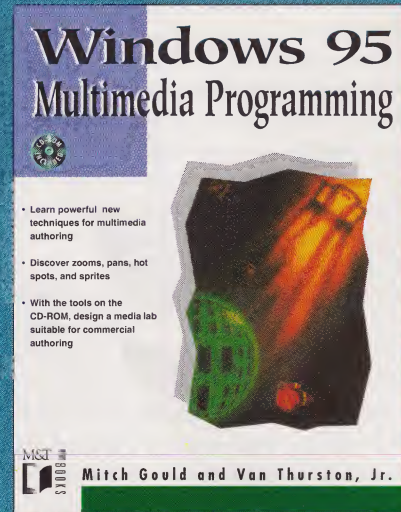
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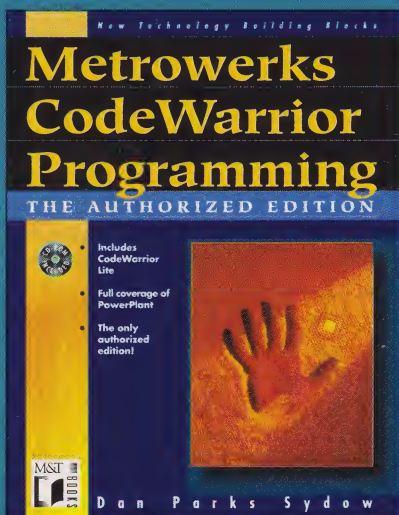
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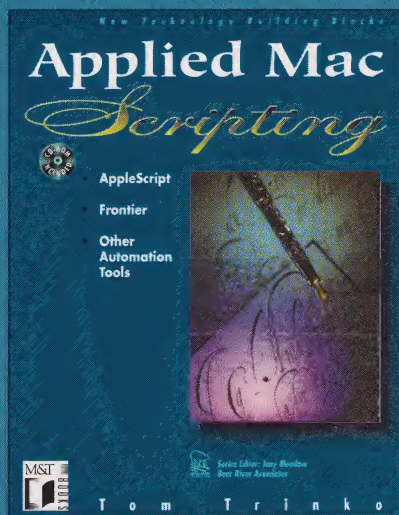
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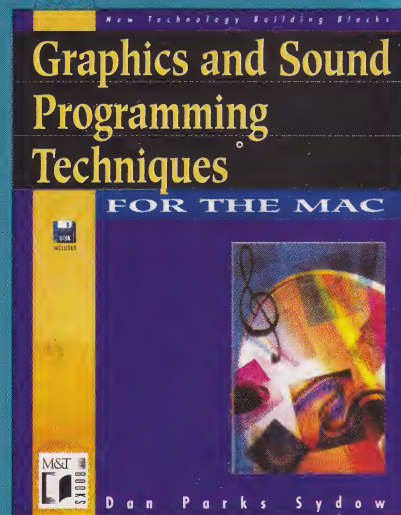
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though technically we could have built all of these objects, there is no way that we could have done that and still kept to our deadlines and budget."

Buying these datasets solved some immediate problems, but it also created some challenges. Each of the pieces of purchased anatomy arrived as a single piece of geometry. "It's as though the model is cast in concrete. To animate any part of an object in 3D Studio meant we had to carefully break the model into animateable pieces."

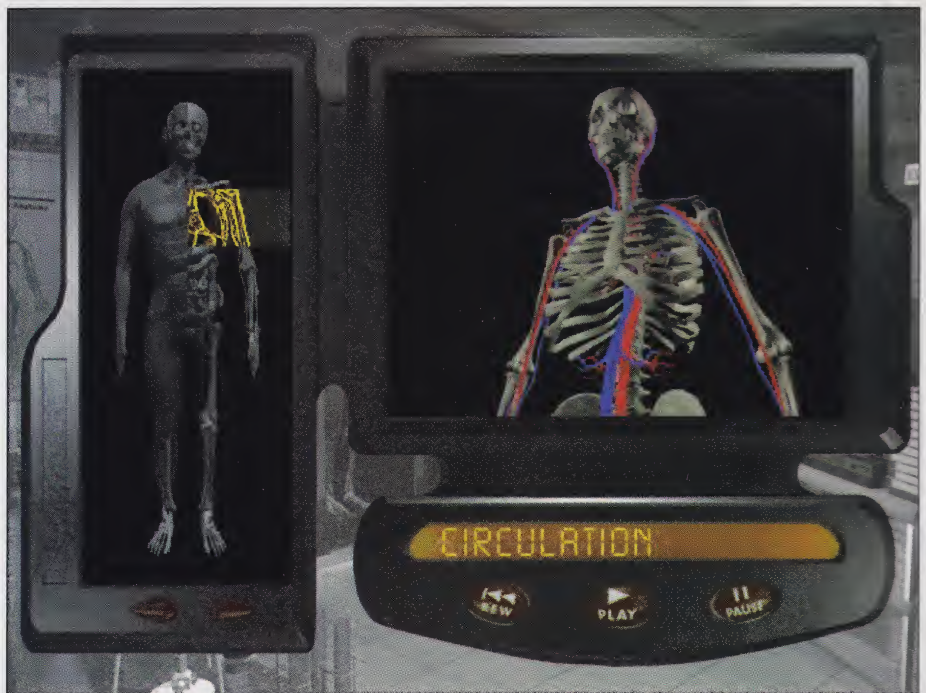
Gold concedes that this limitation is no longer such a problem. "It makes me laugh that we did this entire project before Digmation's Bones IPAS was available. [Bones is designed to make animating fixed masses of geometry much easier.] If I had had to pick just one IPAS to work with on this project, it would have been Bones."

Another challenge of digitized models was that not every piece of anatomy fit with all of its neighbors. Although almost all of the pieces were digitized to scale, there were still some shaping problems. Lungs that did not fit inside the rib cage had to be carefully scaled and shaped. Connecting lofted veins to a digitized heart required the skill and patience of an actual heart surgeon. Solving these problems required careful pulling and shaping of vertices and faces, for which there were no shortcuts.

A third problem (make that challenge) with these digitized models had to do with texture mapping. "It was not easy to create a texture map or mapping coordinates that worked well with the complicated geometry that we were buying," Gold recalls. In fact, one team member spent most of his time handcrafting texture maps that would work for the animations from the chosen views.

Highend products such as Alias' StudioPaint 3D offer a function that would have allowed Gold's team to paint surface textures on 3D objects. But Positron Publishing's MeshPaint 3D IPAS module for 3D Studio offers the same capability and would have made life for Gold's team much simpler had it been available at the time. Even so, Gold does very little with MeshPaint, though he admits that for generating information about the position of bitmaps on mesh objects, these types of 3D paint programs are invaluable. In fact, another plug-in called CyberMesh *was* used on the project. It allows objects to be painted in Photoshop, but we'll talk more about that later.

All the animations on the *How Your Body Works* CD-ROM had to be in 256 colors for compatibility with MPC computers. This meant that the colors in a model had to be carefully selected so as to minimize the amount of dithering that would take place.



A large selection of pre-built anatomical models from Viewpoint DataLabs was used in the production of *How Your Body Works*. The hi-res skeleton, used for close-ups and shown here, contains 142,000 polygons. Lower resolution models (9,000 polygons) were used for long shots (shown on the left side of this screen shot).

Entire scenes were allocated families of hues to reduce the overall number of colors in a particular scene. A lot of the textures for the internal organs of the body came from the supermarket. Gold's team would purchase slabs of flank steak and fresh salmon steaks, and then lay them on a flatbed scanner to digitize them. The resulting texture maps are very believable! The steaks have long since disappeared.

Starting from Scratch

Of course, not all of the elements in the project were purchased from Viewpoint. Many of them were created from scratch using the tools in 3D Studio. For most of the organic shapes, the Shadow and Light team used either the DEFORM/FIT tool or a single complex path with multiple shapes assigned to it, both in the 3D Loftter. The DEFORM/FIT tool in 3D Studio allows a shape to be defined by three elements — the outline from the top view, the outline from the side view, and cross sections at various points through the shape. This tool, one that many find difficult to master, is ideal for creating complex curvilinear shapes.

Take, for example, a human kidney. It was fairly easy to draw this shape as seen from the front. This can become the FIT X shape, as 3D Studio refers to it. The kidney as seen from the side becomes the FIT Y shape. A GEN PATH command creates a path for the shapes to be placed along. By drawing longitudinal slices through the kidney and placing these

shapes along the generated path, a very detailed and accurate kidney can be created.

Here's another method Shadow and Light used for generating complex objects: By creating a curved path that follows the direction of an object and again placing cross-sectional shapes along it, objects such as veins and bones can be easily generated. A valuable tip: To create veins that course all the way through the human body, first load a complete digitized skeleton into the 3D Editor. Then, in the 3D Loftter, activate the DISPLAY 3D command. This produces a grayed representation of selected mesh objects in the 3D Editor. Use the front and side view in combination in the Loftter to produce a long curved path that has the exact placement and curvature of the vein. This path would also wrap accurately around all of the existing geometry. Then, by placing shapes along the path that represents the various cross-sections of the vein, a perfect mesh vein is created in exactly the correct place.

Another tool Gold's team used extensively was the Python IPAS from 4DVision. "It was the perfect tool for this job." The storyboard called for several animations to show the progression of blood as it flowed through veins. The vein had to appear as the blood traveled along its course. Python will take an object created in the Loftter and animate its appearance over time. Stuart created the veins as described above and simply told Python when to begin showing the start of the vein mesh object and when to end. In the final an-

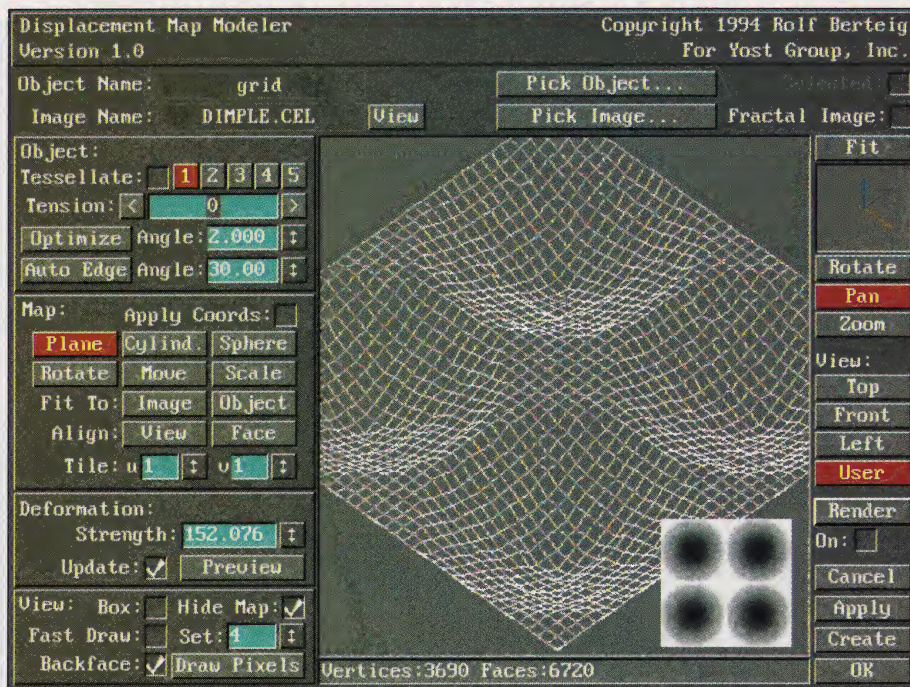
imation the vein grows smoothly outward from the heart toward the feet as blood is pumped along. Python gave the team much more control than their other option, animated opacity maps.

Morphing

During a team meeting at the beginning of the project, the animators discussed their thoughts on how to represent living material. "What does it mean for an object to be alive?" Gold pondered. "In this project it meant that there was always something going on. A living object should always be changing shape, changing color."

To the team this meant organs should pulse as life flowed through them. Surfaces should move and subtly change color to embellish the feeling of life in this representation of living tissue. Stuart analyzed how this was going to be realized with 3D Studio. "To get the effect we were looking for, we would essentially use two different techniques. We would change the shape by generating morph targets, and we would create animated surface effects to enhance this motion."

Morphing — changing the shape of one object into another over time — has become an indispensable part of the animator's bag of tricks. The Shadow and Light team used morphing extensively, though often subtly. 3D Studio morphs between objects well with one major limitation. Each morphed object



Displace is a PXP (Procedural modeling eXternal Process) from the Yost Group's Disk 7 that has many uses. Mesh objects can be modified according to luminance values and deformation strength settings. A Fractal Image option generates gaseous, random bitmaps.

pair must have the same number of vertices. This limitation means the morph targets must be created in specific ways. One method involves simply creating one object, then copying it, and modifying either or both of

the two objects. This can be accomplished by using scaling tools, modifying selections of vertices, or any of the other standard editing tools.

Morph targets can also be created using the 3D Loft. When creating objects using the Loft, as long as the path has the same number of steps, the shapes have the same number of vertices, and the OPTIMIZE option is not selected, the resulting shapes will have the same number of total vertices.

Morphable objects can also be created using IPAS plug-ins. Many of these tools create morph targets as their output. These targets can then be assigned to whatever time period is appropriate, and the model will smoothly animate from one target to another. One of the tools Gold used in this project was the Displace IPAS.

Displace is a PXP (Procedural modeling eXternal Process) from the Yost Group's Disk 7 that has many uses. This tool is called from the 3D Editor and when selected brings up its own interface screen. You select an object from the scene and a bitmap image from the disk. The mesh object can then be modified according to the luminance values of the bitmap and a DEFORMATION STRENGTH setting within DISPLACE. Light areas in the bitmap move away from the object faces' center, darker areas are contracted. A FRACTAL IMAGE option creates gaseous, random bitmaps that can be applied to objects.

Gold was able to create subtle distortions in the surfaces of objects using these fractal images. If the same object was used several

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times, each having a different displacement map applied to it, when the objects were used as morph targets the result was an extremely pleasing and subtle pulsing object. This technique was used on the walls of many of the internal organs in the body.

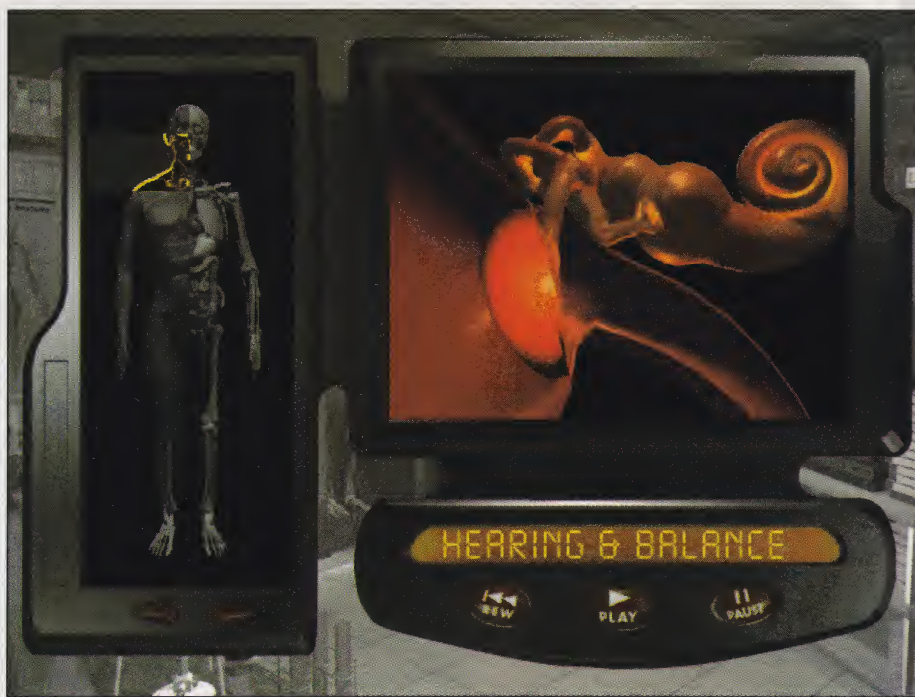
3D Studio also allows a morphing technique to be used to animate materials. If the respective morph targets have different materials, and the MORPH MATERIAL option is selected for them, then as the objects change shape they will also change their materials. Colors will shift from one hue to another, and texture and bump maps will fade between images. By creating separate texture and bump maps for many of the morph objects, Gold was able to convey both the movement of surface elements as well as the motion taking place under the surface.

Knoll Software's CyberMesh, a 3D Studio plug-in that works with Adobe Photoshop, was also used. CyberMesh looks at the luminance values of a bitmap much the way Displace does. From this 2D information, CyberMesh creates a 3D mesh object from scratch. Using this tool meant that models could be literally painted in Photoshop. Light areas of the image would be raised. Darker areas would be cut into the object. The resulting object can be exported as a .DXF file and brought into 3D Studio. Even with different images, CyberMesh can be told to create the same complexity of .DXF. This means any object created this way would be a valid morph target inside 3D Studio as it would have the same number of vertices.

The second method of creating life in an object was much simpler. Animating the surfaces of the objects was accomplished using animated bump and texture maps. The Displace tool actually changes the geometry of an object. Bump maps affect the way light appears to reflect from the surface of an object, and in doing so simulates displacement without actually changing the geometry.

There are several sources for animated bump maps. 3D Studio accepts animations in the form of .FLC and .FLI files, so Autodesk's Animator Pro is an obvious choice. It also accepts sequences of .TGA and .JPG files, so digitized video can also be utilized. Also, many of the CD-ROMs containing textures include sequences of files that can be used to animate maps.

The Smoke IPAS, also from the Yost Group (Disk 2), is a perfect tool for creating animated surface textures, as Gold and his team discovered. This IPAS is most commonly used to create animated opacity maps to simulate effects like the shifting dust and smoke patterns caught in a column of light. These same animated smoky textures when used as a tex-



CyberMesh was used to paint 3D models in Photoshop. The plug-in looks at luminance values (much the way the Displace plug-in does) and creates a 3D mesh object from scratch. Light and dark areas become the basis for bump maps, with light areas being raised and dark cutting into the image.

ture and bump map combination are perfect for living tissue such as that found on the inside of veins. There are controls for the two main colors, complexity, and speed of the patterns. By selecting blood-like colors and a slow speed of animation, Gold found the effect to be perfect for many of the animation sequences that take place inside the body.


Many of the objects that the Shadow and Light team eventually had in their scenes were incredibly complicated. "The Doctor's office at one point contained 1.5 million faces," Stuart confided. Another IPAS module — Optimize (from the Yost Group's Disk 7) was used to get some of these face counts under control. "Optimize was essential for this project. Without Optimize I don't think that we could have completed this project on time," Gold explained.

Using Optimize could not be simpler. The module is loaded from inside the 3D Editor and an object is selected. By changing an optimize angle, the tool will look carefully at the model and eliminate redundant faces. With low angle settings, the rendered optimized models are almost impossible to distinguish from their complex relatives. Face counts can often be reduced by a factor of five without appreciable loss in quality to an object.

Another factor that became an issue during this project was gross storage and project rendering issues. Gold used 3D Studio's network render feature to render animations on several Pentium systems. However, despite the speed of these systems, there was a huge

slowdown in rendering as soon as all the available RAM was used, and 3D Studio started to utilize virtual RAM (available space on the hard drive). With some of these projects containing hundreds of thousands of faces, render times were becoming a problem.

The team was able to work around this problem by breaking the project into pieces. Layers of objects in the project files were separated into manageable sizes and rendered separately. These smaller animations did not overrun the amount of available RAM and rendered much faster. These pieces of animation were saved as sequential .JPG files. A .JPG file is a file format that trades quality for JPEG compression. Gold found the quality of the resulting .JPG files were fine for creating the finished .AVI files, while the compression meant that the hard drive storage of these files did not become a problem. These streams of files could then be composited together using the Video Post module in 3D Studio. This entire process meant that all the machines were rendering optimally, and many, many hours of render time were saved.

Gold's recollections of the project are positive. "Using these techniques, we were able to get the look we had visualized and complete the project on time and under budget." Human anatomy doesn't have to be a painful experience. Just as a surgeon needs the right tools and techniques to operate on a body successfully, computer animators, when suitably equipped, can create very lifelike animations of living organic matter. 

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Corel CD Creator provides a secure and durable medium for storing your vital data with quick and easy access. The CDs you create can then be played on virtually every CD-ROM drive or audio player—making Corel CD Creator the most user-friendly CD recording software on the market!

"Corel CD Creator is definitely king of the mountain... it won our Best of Times award."

LAN Times
January, 1995

"The genius of CD Creator is that it hides the complexity and makes creating your own CD-ROMs a familiar process."

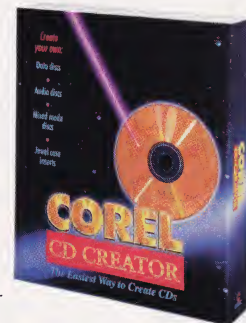
PC Magazine
February, 1995

"Simply the best CD authoring package available."

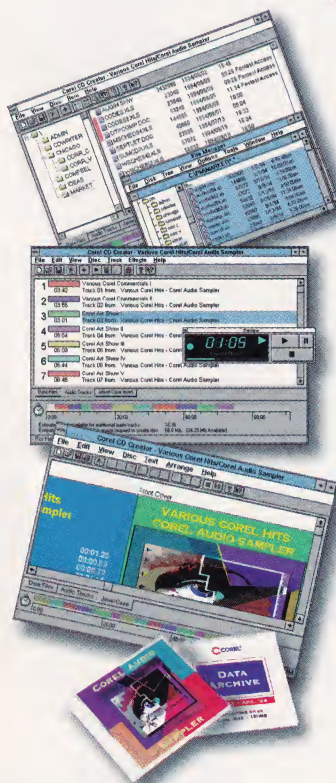
PC Pro
February, 1995

Features:

- Create mixed mode discs (audio and data)
- "Drag and drop" layout design using OLE 2.0
- Support for single session and multisession discs
- Writes MS-DOS or ISO-9660 file names
- Includes a WAV file editor
- Create your own customized CD jewel case insert
- Includes a utility to create your own compilation Photo CD



KUP-0138



1 To design the layout of the information simply drag and drop data and audio files directly to the Corel CD Creator window.

2 Using a CD recorder you can now "burn" your CD.

3 Create your own jewel case insert or use the sample templates provided.

Did you know...?

CD recorders can be purchased for as little as \$1500*!

Corel CD Creator works with virtually all CD recorders. To create your own CDs, you will also require a CD recorder. For a complete list of Corel certified recorders, please call: 1-613-728-0826 ext. 3080, Document # 1010.

Call for the location of the Egghead Software store nearest you. To order directly from our Eggpress Ordering Service, please call 1-800-EGGHEAD

EGGHEAD SOFTWARE
North America's Software Experts.



\$179⁵⁵
CUE

US\$ plus applicable taxes.

Hearing and Speech Impaired customers can reach us by calling 1-800-949-3447 TDD

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